STAGECOACH ESTATES SUBDIVISION
WEST WEBER, UTAH

LYING AND SITUATE IN THE SOUTHEAST QUARTER OF SECTION 21, TOWNSHIP 6 NORTH, RANGE 2 WEST, SALT LAKE BASE AND MERIDIAN
SURVEY PERFORMED: JANUARY 2020

16 16 / 21 21 — North Quarter Corner Section 21, Township 6 North, Range 2 West, Salt Lake Base and Meridian. Fnd Weber County Surveyor Brass Cap Monument flush with surface in fence line (see tie sht.).

N00°19'44"E 3924.84'

S89°36'09"E 1321.93'

1108.93'

KAPP, INVESTMENT COMPANY LLC
15-057-0046

80 0 80 160
SCALE OF FEET

LEGEND

18 17 = SECTION CORNER & SECTION LINE
= SET 5/8" X 24" BAR & CAP LS 356548 & PROPERTY LINE
= ROAD RIGHT-OF-WAY LINES
= 30.00' STORM DRAIN EASEMENT
= 10.00' PUBLIC UTILITY EASEMENT
= ADJOINING PROPERTY LINES
= DIMENSION LINES
= EXTANT FENCE LINE
(M) or (MEAS.) = MEASURED
(R) or (REC.) = RECORD
ROS = RECORD OF SURVEY

DEGORIO SUBDIVISION PHASE 2 BOOK 44, PAGE 32

DEGORIO SUBDIVISION PHASE 1 BOOK 10, PAGE 40

OPEN SPACE
CONTAINS 1.14 acres 49,853 sq. ft.

OPEN SPACE
CONTAINS 17.39 acres 757,562 sq. ft.

Stream Protection Zone

Temporary Turn-Around
L=24.08'
R= 50.00'
Δ=277°24'01"

LOT 6 0.32 acres 14,081 sq. ft.
LOT 5 0.33 acres 14,186 sq. ft.
LOT 4 0.33 acres 14,186 sq. ft.
LOT 3 0.33 acres 14,186 sq. ft.
LOT 2 0.33 acres 14,186sq. ft.
LOT 1 0.32 acres 14,145 sq. ft.
LOT 7 0.39 acres 16,879 sq. ft.
LOT 8 0.39 acres 16,905 sq. ft.
LOT 9 0.39 acres 16,905 sq. ft.
LOT 10 0.39 acres 16,095 sq. ft.
LOT 11 0.39 acres 16,095 sq. ft.
LOT 12 0.39 acres 16,831 sq. ft.
LOT 13 0.39 acres 16,955 sq. ft.
LOT 14 0.36 acres 15,569 sq. ft.
LOT 15 0.33 acres 14,403 sq. ft.
LOT 16 0.23 acres 10,049 sq. ft.
LOT 17 0.21 acres 9,101 sq. ft.
LOT 18 0.21 acres 9,084 sq. ft.
LOT 19 0.21 acres 9,071 sq. ft.
LOT 20 0.21 acres 9,071 sq. ft.
LOT 21 0.21 acres 9,071 sq. ft.
LOT 22 0.21 acres 9,071 sq. ft.
LOT 23 0.21 acres 9,071 sq. ft.
LOT 24 0.21 acres 9,071 sq. ft.
LOT 25 0.21 acres 9,071 sq. ft.
LOT 26 0.29 acres 9,026 sq. ft.
LOT 27 0.32 acres 9,085 sq. ft.
LOT 28 0.32 acres 9,071 sq. ft.
LOT 29 0.32 acres 9,071 sq. ft.
LOT 30 0.32 acres 9,071 sq. ft.
LOT 31 0.32 acres 9,071 sq. ft.
LOT 32 0.32 acres 9,071 sq. ft.
LOT 33 0.32 acres 9,071 sq. ft.
LOT 34 0.32 acres 9,071 sq. ft.
LOT 35 0.41 acres 17,801 sq. ft.
LOT 36 0.45 acres 19,510 sq. ft.
LOT 37 0.64 acres 27,973 sq. ft.
LOT 38 0.53 acres 23,009 sq. ft.
LOT 39 0.31 acres 13,380 sq. ft.
LOT 40 0.30 acres 13,230 sq. ft.
LOT 41 0.30 acres 13,230 sq. ft.
LOT 42 0.34 acres 14,700 sq. ft.
LOT 43 0.34 acres 14,700 sq. ft.
LOT 44 0.34 acres 14,644 sq. ft.
LOT 45 0.35 acres 15,236 sq. ft.
LOT 46 0.37 acres 15,947 sq. ft.
LOT 47 0.41 acres 17,880 sq. ft.
LOT 48 0.21 acres 9,071 sq. ft.
LOT 49 0.21 acres 9,071 sq. ft.
LOT 50 0.21 acres 9,071 sq. ft.
LOT 51 0.21 acres 9,071 sq. ft.
LOT 52 0.21 acres 9,071 sq. ft.
LOT 53 0.21 acres 9,071 sq. ft.
LOT 54 0.21 acres 9,071 sq. ft.
LOT 55 0.29 acres 9,085 sq. ft.

DETENTION BASIN
0.73 acres 31,830 sq. ft.

Temporary Turn-Around
L=24.08'
R= 50.00'
Δ=277°24'01"

LINE TABLE		
LINE	LENGTH	BEARING
L1	180.00'	S89°30'27"E
L2	90.14'	S89°30'27"E
L3	13.40'	S42°06'38"E
L4	122.02'	N00°22'17"E
L5	122.82'	N00°22'17"E
L6	10.00'	N89°37'43"W
L7	29.13'	S17°11'54"W (R)
L8	40.00'	N00°19'53"E
L9	40.00'	S00°20'10"W

CURVE TABLE			
CURVE	LENGTH	RADIUS	DELTA
C1	206.81'	250.00'	47°23'49"
C2	207.34'	250.00'	47°31'05"
C3	23.60'	15.00'	90°09'41"
C4	23.52'	15.00'	89°50'19"
C5	82.51'	283.00'	16°42'21"
C6	65.00'	283.00'	13°09'35"
C7	86.59'	283.00'	17°31'53"
C8	113.59'	217.00'	29°59'30"
C9	10.41'	217.00'	02°44'57"
C10	55.97'	217.00'	14°46'38"
C11	60.31'	283.00'	12°12'41"
C12	10.27'	283.00'	02°04'48"
C13	125.94'	283.00'	25°29'49"
C14	38.18'	283.00'	07°43'47"
C15	86.69'	217.00'	22°53'26"
C16	92.81'	217.00'	24°30'23"
C17	23.55'	15.00'	89°57'36"
C18	23.57'	15.00'	90°02'24"

RADIAL LINE TABLE		
LINE	LENGTH	BEARING
R1	40.00'	N00°22'17"E
R2	33.00'	N89°40'07"W
R3	33.00'	S89°40'07"E
R4	30.00'	S00°29'33"W
R5	30.00'	N00°29'33"E
R6	33.00'	S47°53'22"E
R7	33.00'	N47°53'22"E
R8	33.00'	S00°22'17"W
R9	33.00'	N00°22'17"E
R10	50.00'	S41°37'52"W
R11	50.00'	S40°58'07"E
R18	50.00'	N48°19'44"W
R19	50.00'	S49°04'17"W

RADIAL LINE TABLE	
LINE	BEARING
R12	S24°59'56"W
R13	N40°09'35"E
R14	N14°39'46"E
R15	N12°34'57"E
R16	N15°08'55"E
R17	N17°53'52"E

Are all the lots going to be slab on grade? There needs to be a note specifying an elevation the lowest floor will be etc.
If the lots are built up with the roadway will water drain onto adjacent property? How will it be controlled?

This will be connected to sewer

1700 SOUTH STREET

1800 SOUTH STREET

Geotech report shows groundwater the highest in this area so the geotech will need to do a site visit for the roadway and the homes in this area for sure.

N89°37'43"W 1321.81'
N89°37'43"W 2643.54'
BASIS OF BEARING

S89°37'43"E 623.81'
S89°37'43"E 568.56'
518.56'
1093.85'

East Quarter Corner Section 21, Township 6 North, Range 2 West, Salt Lake Base and Meridian. Fnd Weber County Surveyor Brass Cap Monument below surface of asphalt with ring & lid (see tie sht.)

21 22 / 21 22

FLINDERS SUBDIVISION PHASE 1 BOOK 90, PAGE 20

S00°20'10"W 1317.23'
794.03'
N00°20'03"E 2633.26'
1321.78'

Southeast Corner Section 21, Township 6 North, Range 2 West, Salt Lake Base and Meridian. Fnd Weber County Surveyor Brass Cap Monument below surface of asphalt with ring & lid. (see tie sht.)

South Quarter Corner Section 21, Township 6 North, Range 2 West, Salt Lake Base and Meridian. Fnd Weber County Surveyor Brass Cap Monument below surface of asphalt without ring & lid (see tie sht.)

21 21 / 28 28

N00°19'53"E 1317.84'
131.96'
48.04'
47.96'
131.96'

WEBER-MORGAN HEALTH DEPARTMENT

I hereby certify that the soils, percolation rates, and site conditions for this subdivision have been investigated by this office and are approved for on-site waste water disposal systems.

Signed this _____ day of _____ , 2021.

Director, Weber-Morgan Health Department

PLAT NOTE:

"Agriculture is the preferred use in the agriculture zones. Agricultural operations as specified in the Land Use Code for a particular zone are permitted at any time including the operation of farm machinery and no allowed agricultural use shall be subject to restrictions on the basis that it interferes with activities of future residents of this subdivision." WCO 106-1-8(c)(5).

PREPARED BY:
Boundary Consultants
Professional Land Surveyors
5554 West 2425 North Hooper, Utah
801-792-1569
dave@boundaryconsultants.biz

FOR:
TERREX ENGINEERING
P.O. Box 13059
OGDEN, Utah 84412
801-458-9647

SURVEYORS CERTIFICATE

I, David E. Hawkes, certify that I am a Professional Land Surveyor holding license number 356548 in accordance with Title 58, Chapter 22, Professional Engineers and Professional Land Surveyors Licensing Act and that a survey of the described tract of land has been completed by me in accordance with Section 17-23-17 and that I have verified all measurements, have placed monuments as shown hereon and that all lots meet the requirements of the Land Use Code.

NARRATIVE

See Record of Survey #6443 filed with the Weber County Surveyor.

BOUNDARY DESCRIPTION

The Southwest Quarter of the Southeast Quarter of Section 21, Township 6 North, Range 2 West, Salt Lake Base and Meridian, U.S. Survey, Weber County, Utah. Containing 40 acres, More or Less.

Subject Parcel being more particularly described as follows:

A parcel of land comprising the 39.98 acres contained in Southwest Quarter of the Southeast Quarter of Section 21, Township 6 North, Range 2 West, Salt Lake Base and Meridian. Described in that certain Quit Claim Deed recorded as Entry #2779143 of the Weber County Records. Basis of Bearing for subject description being South 89°37'43" East 2643.59 feet coincident with the south line of the Southwest Quarter of said Section 21. Subject Parcel being more particularly described as follows:

Beginning at the Weber County brass cap monument marking the South Quarter Corner of said Section 21, thence North 00°19'53" East 1317.84 feet coincident with the Center Quarter Section line to the number five rebar and cap stamped "Gardner Eng." monumenting the C-S Sixteenth Corner; Thence South 89°36'09" East 1321.93 feet coincident with the Center South Sixteenth Section line to a number five rebar and cap stamped "Mtn Eng" monumenting the S-E Sixteenth Corner; Thence South 00°20'10" West 1317.23 feet coincident with the East Sixteenth Section Line to the East Sixteenth Corner; Thence North 89°37'43" West 1321.81 feet coincident with the south line of said Southwest Quarter of the Southeast Quarter of Section 21 to the point of beginning.

LICENSED PROFESSIONAL LAND SURVEYOR No. 356548 DAVID E. HAWKES STATE OF UTAH

OWNERS DEDICATION

Known all men by these presents that we, the undersigned owners of the above described tract of land having caused the same to be subdivided into lots and public streets as shown on this plat and name said tract **Stagecoach Estates Subdivision,** and hereby dedicate, grant and convey to Weber County, Utah, all those parts or portions of said tract of land designated as public streets the same to be used as public thoroughfares forever, and also dedicate to Weber County those certain strips as easements for public utility and drainage purposes as shown hereon, with no buildings or structures being erected within such easements, in witness we have hereunto set our signatures.

Signed this_____day of_____2021.

XXXXX

XXXXXX

ACKNOWLEDGMENT

STATE OF UTAH } S.S.
COUNTY OF WEBER }

On the_____day of_____2021, personally appeared before me, the undersigned Notary, in and for said County of Weber, in said State of Utah, the signers of the above Owner's Dedication, two (2) in number, who duly acknowledged to me that they signed it freely and voluntarily for the purposes therein mentioned.

Notary Public _____ My Commission Expires _____

WEBER COUNTY ATTORNEY

I have examined the financial guarantee and other documents associated with this subdivision plat and in my opinion they conform with the County Ordinance applicable thereto and now in force and affect.

Signed this _____ day of _____ , 2021.

Signature

COUNTY SURVEYOR'S CERTIFICATE

I hereby certify that the Weber County Surveyor's Office has reviewed this plat and all conditions for approval by this office have been satisfied. The approval of this plat by the Weber County Surveyor does not relieve the Licensed Land Surveyor who execute this plat from the responsibilities and/or liabilities associated therewith.

Signed this _____ day of _____ , 2021.

Signature

WEBER COUNTY ENGINEER

I hereby certify that the required public improvement standards and drawings for this subdivision conform with County standards and the amount of the financial guarantee is sufficient for the installation of these improvements.

Signed this _____ day of _____ , 2021.

Signature

WEBER COUNTY PLANNING COMMISSION APPROVAL

This is to certify that this subdivision plat was duly approved by the Weber County Planning Commission on the _____ day of _____ , 2021.

Chairman, Weber County Planning Commission

WEBER COUNTY COMMISSION ACCEPTANCE

This is to certify that this subdivision plat, the dedication of streets and other public ways and financial guarantee of public improvements associated with this subdivision, thereon are hereby approved and accepted by the Commissioners of Weber County, Utah this _____ day of _____ , 2021.

Chairman, Weber County Commission

Attest:_____
Title: _____

WEBER COUNTY RECORDER

ENTRY NUMBER _____

FEE PAID_____
FILED FOR RECORD AND RECORDED THIS

DAY OF_____ 2021, IN BOOK_____, AT PAGE_____OF THE OFFICIAL RECORDS.

DEPUTY COUNTY RECORDER

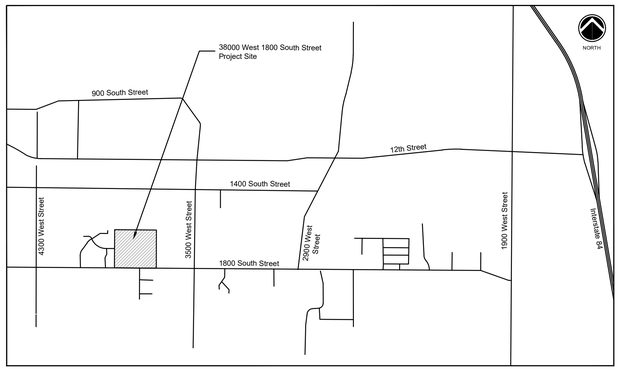
CIVIL SITE CONSTRUCTION DRAWINGS

FOR

STAGECOACH ESTATES SUBDIVISION

WEST WEBER, WEBER COUNTY , UTAH

PROJECT VICINITY MAP
General Address
1800 South 3800 West, West Weber, Utah



Weber County Attorney:

I have examined the financial guarantee and other documents associated with this subdivision plat and in my opinion, they conform with the County Ordinance applicable thereto and now in force and affect.

Signed this _____ day of _____, 20_____.

_____
Signature

Weber County Engineer:

I hereby certify that the required public improvement standards and drawings for this subdivision conform with County standards and the amount of the financial guarantee is sufficient for the installation of these improvements.

Signed this _____ day of _____, 20_____.

_____
Signature

Weber County Planning Commission approval:

This is to certify that this subdivision plat was duly approved by the Weber County Planning Commission on the _____ day of _____, 20___.

_____
Signature
Chairman, Weber County Planning Commission

Weber County Commission acceptance:

This is to certify that this subdivision plat, the dedication of streets and other public ways and financial guarantee of public improvements associated with this subdivision, thereon are hereby approved and accepted by the Commissioners of Weber County, Utah this _____ day of _____, 20_____.

_____
Signature
Chairman, Weber County Commission

Construction Liability Disclaimer

The preparation of the attached Construction Drawings for the Stagecoach Estates residential subdivision was completed in accordance with terms and conditions as established in a Professional Services Agreement (Agreement) between Lync Construction and Terrex Engineering & Construction, LLC (Terrex) dated 12/26/2019. The Agreement excluded any and all obligations on the part of Terrex to inspect any site construction work by a general contractor and general contractor's subcontractors to complete all site improvements as shown on the attached Construction Drawings. Therefore, Terrex assumes no liability or responsibility for any and all construction work that does not meet construction standards and specifications as administered by Weber County, Weber Fire District, Taylor West Weber Water Improvement District, Hooper Irrigation Company, Central Weber Sewer District, State of Utah Divisions of Environmental Quality and Drinking Water. Both Terrex and Lync Construction acknowledge that approval of the attached Construction Drawings by Weber County attests to the accuracy and constructability of all engineering as shown on said Construction Drawings.

In agreement:

Terrex Engineering & Construction, LLC by

_____ this _____ day of _____ , 2021
E. Hal Christensen, SE, PE
President & Corporate Engineering Manager

Lync Construction by

_____ this _____ day of _____ , 2021
Name & Title

_____
Signature

BASIS OF BEARING

SOUTH QUARTER CORNER SECTION 21, T6N, R2W, SLBM,
WEBER COUNTY SURVEY BRASS CAP MONUMENT
(COORDINATE: 1,3700.05 NORTHING ,8661.82 EASTING)

SOUTH EAST CORNER SECTION 21, T6N, R2W, SLBM,
WEBER COUNTY SURVEY BRASS CAP MONUMENT
(COORDINATE: 2,3689.81 NORTHING,10242.36 EASTING)

BEARING: SOUTH 89 37' 43" EAST

BENCHMARK

BM#1
WEBER COUNTY SURVEY
BENCHMARK STAMPED 1954
ELEV: 4241.89'
NEAR SOUTH EAST CORNER
SECTION 21, T6N, R2W, SLBM

DEVELOPER

LYNC CONSTRUCTION

DESIGNER / ENGINEER

TERREX ENGINEERING & CONSTRUCTION,LLC
HAL CHRISTENSEN, SE, PE
Utah No. 168487
272 EAST 3000 NORTH
NORTH OGDEN, UTAH 84414
CELL (801) 448-9647

SHEET INDEX

WEBER COUNTY ENGINEERING DEPARTMENT
FINAL SET APPROVED CONSTUCTION DRAWINGS

SITE BOUNDARY & TOPOGRAPHIC SURVEY
Boundary Consultants
Professional Land Surveyors
5554 West 2425 North, Hooper, UT 84315 (801) 729-1569
David E. Hawkes, PLS Utah No. 356548

DATE	SURVEY / SUBMITTAL
1/03/2020	Site Boundary and Topographic Survey
3/4/2021	Weber County Surveyor's Record Plat

REGISTERED PROFESSIONAL ENGINEER
168487
EDWIN H
CHRISTENSEN
4/27/21
STATE OF UTAH

Terrex Engineering & Construction, LLC
Land Development - Public Works - Water & Wastewater Utilities
P.O. Box 13059 Ogden, UT 84412 (801) 458-9647

DATE	REVIEWED	SUBMITTAL
7/25/2020	EH Christensen, SE, PE	50% TEC Review Submittal
9/30/2020	EH Christensen, SE, PE	90% Weber County Engineering Submittal
1/20/2021	EH Christensen, SE, PE	100% Weber County Engineering Submittal
4/30/2021	EH Christensen, SE, PE	Construction Ready Submittal

Stagecoach Estates
40.0 Acre - 56 Lot Residential Development

DEVELOPER: Lync Construction
GENERAL ADDRESS: 1800 South 3800 West, West Weber, Utah
LAND SURVEYOR: Boundary Consultants / David E. Hawkes, PLS
Technical Review & Construction Approval: Weber County Engineering

COVER

SHEET GEN-01

GENERAL NOTES

1. ALL CONSTRUCTION SHALL COMPLY WITH THE STANDARD DRAWINGS AND SPECIFICATIONS OF THE GOVERNING JURISDICTIONAL ENTITY(IES) FOR THIS PROJECT, UNLESS OTHERWISE NOTED. SEE PROJECT SPECIFICATIONS AND STANDARDS SECTION ON THIS SHEET FOR MORE INFORMATION.
2. GENERAL CONTRACTORS SHALL BE RESPONSIBLE FOR THE MAINTENANCE, ADMINISTRATION, AND DAILY OPERATIONS OF THE STORMWATER POLLUTION AND PREVENTION PLAN AS REQUIRED BY THE UTAH DIVISION OF WATER QUALITY AND AS PRESENTED HEREIN (SHEET SWPPP-01).
3. THE PROPOSED SUBDIVISION PROPERTY IS SUBJECT TO HIGH GROUNDWATER CONDITIONS THAT WILL, IN ALL LIKELIHOOD, REQUIRE EXTENSIVE DEWATERING FOR TRENCH AND ROAD BASE RELATED CONSTRUCTION. GENERAL CONTRACTOR SHALL ACKNOWLEDGE AND ADHERE TO ALL RECOMMENDATIONS AS MADE IN THE GEOTECHNICAL REPORT AS COMPLETED BY CMT ENGINEERING LABORATORIES (GEOTECHNICAL ENGINEERING STUDY, BERTOLDI PROPERTY, 1800 SOUTH ABOUT 3800 WEST, CMT PROJECT NO. 10878, DATED 3/7/2018).
4. GENERAL CONTRACTOR AND GENERAL CONTRACTOR'S SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE SAFETY LAWS OF ANY JURISDICTIONAL BODY AS ADMINISTERED BY WEBER COUNTY ENGINEERING DEPARTMENT INCLUDING THE PLACEMENT AND MAINTENANCE OF ALL TRAFFIC CONTROL BARRICADES, SAFETY DEVICES, AND TRAFFIC CONTROL FLAGGING OPERATIONS WITHIN AND AROUND THE CONSTRUCTION AREA. GENERAL CONTRACTOR SHALL SUBMIT A DETAILED TRAFFIC CONTROL PLAN TO WEBER COUNTY ENGINEERING FOR APPROVAL PRIOR TO THE START OF ANY SITE CONSTRUCTION. ALL TRAFFIC CONTROL PLANS SHALL ADHERE TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND LOCAL COUNTY STANDARDS.
5. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION WITH THE BLUE STAKES OF UTAH TO IDENTIFY ALL UNDERGROUND UTILITY LOCATIONS WITHIN PROJECT CONSTRUCTION LIMITS, OR BOUNDARIES, PRIOR TO THE START OF ANY CONSTRUCTION. GENERAL CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE TO ACCURATELY MARKED UNDERGROUND UTILITIES CAUSED BY GENERAL CONTRACTOR'S CONSTRUCTION WORK OR ACTIVITIES.
6. GENERAL CONTRACTOR AND GENERAL CONTRACTOR'S SUBCONTRACTORS SHALL REMOVE ALL DEBRIS, BOTH ABOVE AND BELOW GROUND, AS REQUIRED FOR THE CONSTRUCTION OF THE PROPOSED SITE IMPROVEMENTS. THIS SHALL INCLUDE CLEARING AND GRUBBING WHICH CONSISTS OF CLEARING THE GROUND SURFACE OF ALL TREES, STUMPS, BRUSH, UNDERGROWTH, HEDGES, HEAVY GROWTH OF GRASS OR WEEDS, FENCES, STRUCTURES, DEBRIS, RUBBISH, AND SUCH MATERIAL WHICH CAN BE CONSTRUED AS BEING UNSUITABLE FOR THE CONSTRUCTION OF RESIDENTIAL STREETS, RESIDENTIAL BUILDING LOTS, BURIED WATER AND SEWER PIPED DISTRIBUTION AND COLLECTION SYSTEMS. ALL SITE DEBRIS SHALL BE STOCKPILED AND DISPOSED OF OFF SITE.
7. GENERAL CONTRACTOR AND GENERAL CONTRACTOR'S SUBCONTRACTORS SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL WORK AS PERFORMED BY INDIVIDUAL WORKERS ASSOCIATED WITH ANY GIVEN BUILDING TRADE AND BETWEEN CONSTRUCTION TRADE ORGANIZATIONS. IF ANY DISCREPANCIES ARE FOUND, THE GENERAL CONTRACTOR AND GENERAL CONTRACTOR'S SUBCONTRACTORS SHALL TAKE IMMEDIATE ACTIONS TO RESOLVE SAID DISCREPANCIES TO PRECLUDE OR MITIGATE THE ISSUANCE OF CHANGE ORDER CLAIMS TO THE PROJECT DEVELOPER OR DEVELOPER'S AUTHORIZED REPRESENTATIVE.
8. GENERAL CONTRACTOR MUST OBTAIN A PERMIT FROM THE WEBER COUNTY BUILDING DEPARTMENT FOR ANY CONCRETE OR ROCK WALLS GREATER THAN 4' IN HEIGHT CONSTRUCTED WITHIN THE PROJECT. ALL ROCK WALLS CONSTRUCTED WITHIN THE PROJECT MUST BE CERTIFIED AND INSPECTED BY A LICENSED STRUCTURAL ENGINEER PRIOR TO THE START OF ANY CONSTRUCTION.
9. ALL SITE BOUNDARY AND TOPOGRAPHIC SURVEYS WERE COMPLETED BY BOUNDARY CONSULTANTS USING RECORD MONUMENTATION AND BENCHMARK DATA AS PROVIDED BY WEBER COUNTY SURVEYOR'S OFFICE.
10. GENERAL CONTRACTOR SHALL KEEP ON SITE AT LEAST ONE COPY OF THE APPROVED CONSTRUCTION DRAWINGS FOR REFERENCE BY APPROPRIATE CONSTRUCTION INSPECTION PERSONNEL AS MAY BE ASSIGNED TO THE ONGOING CONSTRUCTION PROJECT BY WEBER COUNTY ENGINEERING, CENTRAL WEBER SEWER IMPROVEMENT DISTRICT, TAYLOR WEST WEBER WATER IMPROVEMENT DISTRICT, HOOPER IRRIGATION COMPANY, THE UTAH DEPARTMENTS OF ENVIRONMENTAL QUALITY AND DRINKING WATER.
11. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE OVERALL QUALITY OF ALL GENERAL CONTRACTOR'S AND GENERAL CONTRACTOR'S SUBCONTRACTOR'S WORKMANSHIP AND ADHERENCE TO ESTABLISHED DEADLINES FOR ONGOING CONSTRUCTION WORK. GENERAL CONTRACTOR SHALL PROVIDE LYNC CONSTRUCTION WITH A LIST OF ALL SUBCONTRACTORS ASSIGNED TO ANY SUBSTANTIVE PROJECT CONSTRUCTION TASK OVER $50,000 IN CONTRACTUAL VALUE FOR PREAPPROVAL OF SUBCONTRACTOR'S GENERAL QUALIFICATIONS AND FINANCIAL BONDING CAPACITY TO PERFORM THE WORK.
12. THE GENERAL CONTRACTOR SHALL SCHEDULE AND ATTEND A PRECONSTRUCTION MEETING WITH THE WEBER COUNTY PUBLIC WORKS DIRECTOR, CHIEF BUILDING OFFICIAL, COUNTY INSPECTORS, AND THE PROJECT DEVELOPER PRIOR TO THE START OF ANY SITE WORK.

UTILITY NOTES

CULINARY AND SECONDARY WATER

1. UNLESS PRESENTED OTHERWISE ON THE ATTACHED CONSTRUCTION DRAWINGS, ALL CULINARY AND SECONDARY WATER LINES, INCLUDING PRESSURE PIPE, FLOW CONTROL VALVES, PIPING APPURTENANCES, TRENCHING AND BACKFILL REQUIREMENTS, THRUST BLOCKING, ETC. SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH CONSTRUCTION STANDARDS, PROCEDURES, DETAILS, AND SPECIFICATIONS AS ADMINISTERED AND APPROVED OF BY TAYLOR WEST WEBER WATER IMPROVEMENT DISTRICT AND HOOPER IRRIGATION COMPANY. SAID CONSTRUCTION STANDARDS AND SPECIFICATIONS ARE ATTACHED AND MADE A PART OF THESE CONSTRUCTION DRAWINGS.
2. ALL PRESSURE WATERLINES SHALL BE WATER PRESSURE TESTED AT 200 PSI FOR 2 HOURS WITH ALL WATERLINES FILLED WITH CHLORINATED WATER. CHLORINATED WATER SHALL HAVE 50 PPM CHLORINE AND SHALL REMAIN IN ALL PRESSURE WATERLINES FOR A MINIMUM OF 24 HOURS INCLUDING THE 2 HOURS OF PRESSURE TESTING. AFTER THE 24 HOURS, ALL PRESSURE WATERLINES SHALL BE FLUSHED WITH A MINIMUM OF TWO SAMPLE BACTERIA TESTS TAKEN WITH RESULTS PASSING THE UTAH CODE R309-100 AND AWWA C651-14 STANDARS FOR DISINFECTION OF PUBLIC WATER MAINS. ALL TESTING SHALL BE COMPLETED IN ACCORDANCE WITH TAYLOR WEST WEBER WATER IMPROVEMENT DISTRICT SPECIFICATION AS ATTACHED AND MADE A PART OF THESE CONSTRUCTION DRAWINGS.
3. 1" SECONDARY WATER METER SETTERS SHALL BE INSTALLED AT ALL RESIDENTIAL SERVICE CONNECTIONS WITHIN METER BOXES MARKED "IRRIGATION."
4. UNLESS PRESENTED OTHERWISE ON THE ATTACHED CONSTRUCTION DRAWINGS, ALL FIRE HYDRANTS SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH CONSTRUCTION STANDARDS, PROCEDURES, DETAILS, AND SPECIFICATIONS AS ADMINISTERED AND APPROVED OF BY THE WEBER COUNTY FIRE MARSHALL.
5. ALL ABANDON PRESSURE WATER LINES SHALL BE LEFT IN PLACE ON APPROVAL OF THE WEBER COUNTY ENGINEERING DEPARTMENT.
6. ALL CULINARY AND SECONDARY WATER LINES SHALL BE LAID IN PLACE WITH A 12 GAUGE COPPER LOCATOR WIRE WITH EXPOSED ENDS AT EACH VALVE BOX, SERVICE CONNECTION, OR FIRE HYDRANT.

STORM DRAIN AND SANITARY SEWER

1. UNLESS PRESENTED OTHERWISE ON THE ATTACHED CONSTRUCTION DRAWINGS, ALL STORM DRAIN AND SANITARY SEWER PIPING, PIPING APPURTENANCES, INCLUDING MANHOLES, TRENCHING AND BACKFILL REQUIREMENTS, ETC. SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH CONSTRUCTION STANDARDS, PROCEDURES, DETAILS, AND SPECIFICATIONS AS ADMINISTERED AND APPROVED OF BY WEBER COUNTY ENGINEERING DEPARTMENT AND CENTRAL WEBER SEWER IMPROVEMENT DISTRICT.
2. SANITARY SEWERS SHALL BE MANDREL AND AIR TESTED IN ACCORDANCE WITH ASTM D2321 AND F1417 STANDARDS RESPECTIVELY.

POWER

1. PLACEMENT OF HIGH VOLTAGE ELECTRICAL POWER LINES TO PROVIDE ELECTRICAL POWER SERVICE TO THE PROJECT SUBDIVISION SHALL BE DONE BY ROCKY MOUNTAIN POWER OR SUBCONTRACTOR APPROVED BY ROCKY MOUNTAIN POWER.
2. GENERAL CONTRACTOR TO FOLLOW ALL BLUE STAKES OF UTAH PROTOCOLS TO SAFELY LOCATE AND WORK AROUND EXISTING HIGH VOLTAGE POWER LINES.
3. GENERAL CONTRACTOR REQUIRED TO CONTACT ROCKY MOUNTAIN POWER A MINIMUM OF 30 DAYS PRIOR TO THE START OF ANY SITE CONSTRUCTION WORK INCLUDING THE COORDINATION OF ALL WORK TO INSTALL POWER SERVICE TO INDIVIDUAL SUBDIVISION BUILDING LOTS.
4. ANY ELECTRICAL DESIGN WORK REQUIRED TO MAKE UPGRADED RESIDENTIAL SERVICE CONNECTIONS SHALL BE PERFORMED BY A LICENSED ELECTRICAL ENGINEER EMPLOYED BY ROCKY MOUNTAIN POWER OR BY A CONSULTANT AS APPROVED BY ROCKY MOUNTAIN POWER.
5. ANY REQUIRED CHANGES TO THE EXISTING ELECTRICAL POWER DISTRIBUTION SYSTEM TO PROVIDE ELECTRICAL POWER SERVICE TO THE PROJECT SUBDIVISION SHALL BE DONE BY ROCKY MOUNTAIN POWER OR A SUBCONTRACTOR SELECTED BY ROCKY MOUNTAIN POWER.

NATURAL GAS

1. PLACEMENT OF HIGH-PRESSURE NATURAL GAS LINES TO PROVIDE NATURAL GAS SERVICE TO THE PROJECT SUBDIVISION SHALL BE DONE BY DOMINION ENERGY OR SUBCONTRACTOR APPROVED BY DOMINION ENERGY.
2. CONTRACTOR NEEDS TO CONTACT DOMINION ENERGY'S MARKETING DEPARTMENT, 30 DAYS PRIOR TO ANY CONSTRUCTION WORK, TO SIGN UP FOR INDIVIDUAL RESIDENTIAL BUILDING LOT GAS SERVICE.
3. CONTRACTOR WILL BE RESPONSIBLE TO CONDUCT TRENCH BACKFILL COMPACTION TESTS FOR ALL BURIED GAS LINE INSTALLATIONS AT DEVELOPERS EXPENSE.
4. AT THE RECOMMENDATION OF DOMINION GAS ENGINEERING STAFF, HIGH PRESSURE NATURAL GAS LINE STEEL PIPE CASINGS OR CONDUITS WILL BE PLACE AT HEAVY WHEEL LOAD STREET OR HIGHWAY CROSSINGS AT THE DEVELOPER'S EXPENSE.
5. RESIDENTIAL BUILDING LOT PROPERTY LINES AND GRADE ELEVATIONS MUST BE STAKED BY DEVELOPER BEFORE GAS WILL BE INSTALLED.
6. ALL WATER, SEWER AND STORM DRAIN PIPE LINES IN ADDITION TO LOT DRAINAGE CULVERTS IN CONFLICT WITH THE ALIGNMENT OF A HIGH-PRESSURE NATURAL GAS LINES SHALL BE STAKED BY DEVELOPER.
7. ANY FAILURE TO COMPLY WITH THE ABOVE REQUIREMENTS WILL CAUSE EXTENDED DELAYS IN THE PLACEMENT OF NATURAL GAS SERVICE LINES WITH NO EXCEPTIONS.
8. GENERAL CONTRACTOR SHALL CONTACT DOMINION ENERGY A MINIMUM OF TWO WEEKS PRIOR TO SCHEDULING THE INSTALLATION OF NATURAL GAS LINES AND SUBSEQUENT TO THE COMPLETE INSTALLATION OF ALL BURIED ELECTRICAL POWER CABLES, PLACEMENT OF STREET SUBBASE MATERIALS TO WITHIN 6" OF FINISH GRADE FOR PLACEMENT OF ASPHALT PAVING MATERIALS, AND THE 10' UTILITY EASEMENT INSIDE THE STREET RIGHT-OF-WAY LINE IS GRADED TO TOP EDGE OF PAVEMENT ELEVATION.

GRADING AND DRAINAGE NOTES

1. RUNOFF CAPACITIES FOR THE STORM DRAIN PIPING SYSTEM, AS SHOWN ON THE ATTACHED CONSTRUCTION DRAWINGS, WERE DETERMINED USING THE NRCS/SCS TR-55 MODEL FOR RESIDENTIAL DEVELOPMENTS OF 40 ACRES OR MORE.
2. PROJECT STREET DESIGN REQUIREMENTS WERE ESTABLISHED BY CMT ENGINEERING LABORATORIES. REFERENCE THEIR GEOTECHINAL STUDY "BERTOLDI PROPERTY 1800 SOUTH ABOUT 3900 WEST, WEST WEBER, UTAH, CMT PROJECT NO. 10878 DATED 3/7/2018. ALL GRADING OPERATIONS, SITE PREPARATIONS, SCARIFICATION OF EXISTING GROUND SURFACES, UTILITY TRENCH EXCAVATION, ROAD-BASE EXCAVATION, PLACEMENT AND COMPACTION OF STRUCTURAL ROAD-BASE, ANY SITE DEWATERING OPERATIONS TO MITIGATE HIGH GROUNDWATER CONDITIONS, SHALL BE DONE AND COMPLETED IN STRICT ACCORDANCE WITH RECOMMENDATIONS STATED IN THE ABOVE-CITED CMT GEOTECHNICAL STUDY.
3. GENERAL CONTRACTOR SHALL NOTIFY LYNC CONSTRUCTION IMMEDIATELY IN THE EVENT OF A CONFLICT OR IRREGULARITY WITH EXISTING SOIL CONDITIONS IMPACTING ANY ONGOING CONSTRUCTION OPERATIONS AS DOCUMENTED IN THE ABOVE-CITED CMT GEOTECHNICAL STUDY.
4. INDIVIDUAL RESIDENTIAL BUILDING LOT OWNERS ARE RESPONSIBLE FOR THE GRADING OF THEIR INDIVIDUAL LOTS IN PERPETUITY INCLUDING ALL GRADING TO DRAIN INDIVIDUAL LOTS TO DISCHARGE STORM RUNOFF TO THE RESIDENTIAL STREET DRAIN DITCH FRONTING THEIR PROPERTY. THE GRADING OF INDIVIDUAL RESIDENTIAL LOTS MAY BE DONE IN ACCORDANCE WITH HOMEOWNER ASSOCIATION REQUIREMENTS OR WEBER COUNTY BUILDING CODE.
5. GENERAL CONTRACTOR SHALL SECURE APPROVAL OF STREET SUBBASE AND PAVEMENT MATERIALS FROM CMT ENGINEERING LABORATORIES 30 DAYS PRIOR TO THE PLACEMENT OF SAID MATERIALS.
6. GENERAL CONTRACTOR SHALL COMPLETE ALL EXCAVATIONS, SITE SURFACE GRADING, PLACEMENT OF IMPORTED FILL MATERIALS, ALLOWING FOR SCHEDULED INSPECTIONS BY CMT ENGINEERING LABORATORIES INCLUDING THE TAKING OF MATERIAL SAMPLES FOR LABORATORY EVALUATIONS AND SITE COMPACTION TESTS OF PLACED SOIL AND PAVEMENT MATERIALS. GENERAL CONTRACTOR SHALL COORDINATE ALL SITE INSPECTIONS AND MATERIAL TESTING OPERATIONS WITH WEBER COUNTY ENGINEERING DEPARTMENT INCLUDING PROVIDING ALL CERTIFIED TESTING RESULTS TO LYNC CONSTRUCTION AND WEBER COUNTY ENGINEERING DEPARTMENT.
7. GENERAL CONTRACTOR SHALL GIVE NOTICE TO CMT ENGINEERING LABORATORIES (CMT) OF ALL UTILITY TRENCHING AND BACKFILL OPERATIONS IN ADDITION TO STREET SUBGRADE ROUGH GRADING OPERATIONS A MINIMUM OF 48 HOURS IN ADVANCE OF SAID OPERATIONS. CMT WILL PROVIDE SITE INSPECTIONS TO EVALUATE THE STABILITY OF ALL UNDERGROUND UTILITY TRENCHING OPERATIONS INCLUDING THE EFFECTIVENESS OF ANY TRENCH AND SUBGRADE DEWATERING EFFORTS.
8. GENERAL CONTRACTOR SHALL ENFORCE FEDERAL AND STATE SWPPP REQUIREMENTS AND REGULATIONS TO MITIGATE EXCESSIVE SEDIMENT RUNOFF FORM THE OVERALL CONSTRUCTION SITE IN ACCORDANCE WITH THE ATTACHED STORM WATER POLLUTION PREVENTION PLAN. CONTRACTOR SHALL ALSO MAKE EVERY EFFORT TO FURTHER MITIGATE EXCESSIVE DUST AND TO MAINTAIN ALL CONSTRUCTION ACCESS ROADS FREE OF MUD HOLES, RUTS, AND CONSTRUCTION DEBRIS.
9. CMT ENGINEERING LABORATORIES SHALL SUBMIT A FINAL SOILS GRADING AND CONSTRUCTION STUDY TO WEBER COUNTY ENGINEERING DEPARTMENT AND LYNC CONSTRUCTION TO CONFIRM THAT ALL CONSTRUCTION OPERATIONS WERE COMPLETED IN CONFORMANCE WITH THE RECOMMENDATIONS AND CONSTRUCTION REQUIREMENTS GIVEN IN THEIR ABOVE-CITED 2018 STUDY.

Will require video inspection

UTILITY CONTACTS

TAYLOR WEST WEBER WATER IMPROVEMENT DISTRICT
2815 WEST 3300 SOUTH
WEST HAVEN, UT 84401
(801) 731-1668
RYAN ROGERS, GENERAL MANAGER

HOOPER IRRIGATION COMPANY
5375 SOUTH 5500 WEST
HOOPER, UT 84315
(801) 388-3956
DENNIS FLINDERS, SECONDARY WATER MANAGER

CENTRAL WEBER SEWER DISTRICT
2618 WEST PIONEER ROAD
OGDEN, UT 84404
(801) 731-3011
LANCE WOODS, GENERAL MANAGER

WEBER COUNTY ENGINEERING DEPARTMENT
2380 WASHINGTON BLVD
SUITE 240
OGDEN, UT 84401
(801) 399-8374

WEBER COUNTY FIRE DISTRICT
2023 WEST 1300 NORTH
FARR WEST, UT 84404
(801) 782-3580
BRANDON J. THUESON, FIRE MARSHAL

He is not there anymore

UTAH DIVISION OF ENVIRONMENTAL QUALITY
195 NORTH 1950 WEST
SALT LAKE CITY, UT 84116
(801) 536-4123

UTAH DIVISION OF DRINKING WATER
195 NORTH 1950 WEST
SALT LAKE CITY, UT 84116
(801) 536-4400

ROCKY MOUNTAIN POWER
1438 WEST 2550 SOUTH
OGDEN, UT 84401
(866) 221-7070

WEBER COUNTY ENGINEERING DEPARTMENT
FINAL SET APPROVED CONSTUCTION DRAWINGS

SITE BOUNDARY & TOPOGRAPHIC SURVEY
Boundary Consultants
Professional Land Surveyors
5554 West 2425 North, Hooper, UT 84315 (801) 729-1569
David E. Hawkes, PLS Utah No. 356548

DATE	SURVEY / SUBMITTAL
1/03/2020	Site Boundary and Topographic Survey
3/4/2021	Weber County Surveyor's Record Plat

LICENSED PROFESSIONAL ENGINEER
EDWIN H. CHRISTENSEN
STATE OF UTAH

Terrex Engineering & Construction, LLC
Land Development - Public Works - Water & Wastewater Utilities
P.O. Box 13059 Ogden, UT 84412 (801) 458-9647

DATE	REVIEWED	SUBMITTAL
7/25/2020	EH Christensen, SE, PE	50% TEC Review Submittal
9/30/2020	EH Christensen, SE, PE	90% Weber County Engineering Submittal
1/20/2021	EH Christensen, SE, PE	100% Weber County Engineering Submittal
4/30/2021	EH Christensen, SE, PE	Construction Ready Submittal

Stagecoach Estates
40.0 Acre - 56 Lot Residential Development

DEVELOPER: Lync Construction
GENERAL ADDRESS: 1800 South 3800 West, West Weber, Utah
LAND SURVEYOR: Boundary Consultants / David E. Hawkes, PLS
Technical Review & Construction Approval: Weber County Engineering

GENERAL DESIGN & CONSTRUCTION NOTES

SHEET GEN-02

CSI SPECIFICATION DIVISIONS

DIVISION 1 - GENERAL (NOT USED)

DIVISION 2 - SITEWORK:

General Reference: CMT Geotechnical Engineering Study Bertoldi Property No. 10878, March 7, 2018
SITE PREPARATION: Section 6.0.
DRAINAGE & CONTAINMENT: Section 10.0.
ROAD BASE & PAVEMENT: Section 11.0.

Steel Pipe: Prefabficated Storm drain pump station steel pipe discharge manifold shall conform to all ASTM, AWWA and ASME standards as established by Northwest Pipe Company for pipe materials and fabrication, cement mortar interior lining and epoxy exterior coating.
Steel Pipe Appurtenances: Mueller Lineseal III Butterfly Valve (Class 150B) or equal. JCM 201 Steel Coupling or equal.

General Reference: Public Works Standards and Technical Specifications; Weber County, Utah; James M. Montgomery Consulting Engineers Inc; August 1982
Gravity Reinforced Concrete Sewer Pipe: Section 1.6.
PVC Gravity Sewer Pipe: Section 1.9.
PVC Pressure Water Pipe: Section 1.10.
Reinforced Concrete Gravity Sewer Pipe: Section 1.6.

DIVISION 3-CONCRETE:

General Reference: Weber County Public Works Standards and Technical Specifications, James M. Montgomery Consulting Engineers, August 1982:
CONCRETE MATERIALS & METHODS: Sections 1.4.02 and 1.4.02.03.
CONCRETE FORMS & ACCESSORIES: (NOT USED)
CONCRETE REINFORCEMENT: Section 1.4.06.
CAST IN PLACE CONCRETE: Sections 1.4.05 through 1.4.10.

General Reference: American Public Works Association Standard Plans for Public Works Construction, 2012 Edition:
Cast in Place in Place Reinforced Concrete Box Culvert Sections 3: Flood Control and Storm Drain Facilities.

General Reference Northwest Pipe Company-Precast:
PRECAST CONCRETE: All precast concrete structures shall be manufactured per the dimensions given in the construction drawings in accordance with ASTM C-858 and ASTM C-857 specifications for hydraulic drainage precast concrete vaults.

DIVISION 4-MASONARY (NOT USED)

DIVISION 5-METALS:
05090-Metal Fasteners: Redhead trubolt wedge type expansion anchors type 304 stainless steel or equal. Bolts and miscellaneous fasteners shall conform to ASTM A307, ANSI B18.22.1 standards.
05100-Structural Metal Framing: Precast concrete vault access hatch shall be Neehah manhole frame, bolted and gasketed lid R-6665-0 TP or equal.
05050-Metal Materials & Methods: All materials shall be new and undamaged and shall conform to pertinent ASTM or other industry standard specifications, including: ASTM A36 for plates and shapes, ASTM A500 for structural steel and tubing, ASTM B211 for structural bars and rods.
05500-Metal Fabrication: Structural steel and miscellaneous metal shall be fabricated in conformity with dimensions, arrangement, sizes and weights or thicknesses shown on the drawings or stipulated in various drawings and specifications as provided by Northwest Pipe company for the fabrication of the storm drain pump station.

DIVISION 6-WOODS & PLASTICS (NOT USED)
DIVISION 7-THERMAL & MOISTURE PROTECTION (NOT USED)
DIVISION 8-DOORS, WINDOWS & INTERIORS (NOT USED)

DIVISION 9-FINISHES:
09100 Structural Metal: Bar screen and welded concrete structure bolt tabs shall be galvanized utilizing the hot-dip galvanizing process per ASTM A153 and A385 standards.

DIVISION 10-SPECIALTIES (NOT USED)

DIVISION 11-EQUIPMENT
11010 Storm Drain Vertical Turbine Pump: 18" Vertical Turbine Pump to be as manufactured by Cascade Pump Company Axial Flow Pump Model No. 16AF 18" 150# F/F. General contractor shall submit all pump station details as shown on CD-02 for confirmation and approval of all mechanical pump installation dimensions and operational requirements to Nickerson Company, Inc. located at 2301 West Indiana Ave., Salt Lake City, UT. Contact Brian McWorter at (801) 973-8268.

DIVISION 12-FUNISHES (NOT USED)
DIVISION 13-SPECIAL CONSTRUCTION (NOT USED)
DIVISION 14-CONVEYING SYSTEMS (NOT USED)
DIVISION 15-MECHANICAL
DIVISION 16-ELECTICAL (NOT USED)

COOR.	DESCRIPTION	SHEET	NORTHING	EASTING
CRD-01	POINT OF INTERSECTION 1800 SOUTH STREET AND 3800 WEST STREET	PP-02	3698.772	8862.414
CRD-02	POINT OF INTERSECTION 1700-1750 SOUTH STREET AND 3800 WEST STREET STA 6+48.00	PP-03	4347.139	8866.143
CRD-03	3800 WEST STREET CENTERLINE STAT 9+79.90 END STREET	PP-03	4678.635	8868.049
CRD-04	1700-1750 SOUTH STREET CENTERLINE STAT 0+00	PP-04	4348.863	8865.592
CRD-05	POINT OF CURVE 1700-1750 SOUTH STREET CENTERLINE STA 2+73.50	PP-04	4346.528	8937.288
CRD-06	POINT OF TANGENCY 1700-1750 SOUTH STREET CENTERLINE STA 3+75.00	PP-04	4345.584	9047.018
CRD-07	POINT OF CURVE 1700-1750 SOUTH STREET CENTERLINE STA 4+78.50	PP-04	4264.178	9120.602
CRD-08	POINT OF CURVE 1700-1750 SOUTH STREET CENTERLINE STA 6+45.25	PP-05	4140.481	9232.412
CRD-09	22.5 BEND IN WATER MAIN STA 6+98.00	PP-05	4112.612	9278.433
CRD-10	22.5 BEND IN WATER MAIN STA 6+98.00	PP-05	4107.957	9274.212
CRD-11	POINT OF TANGENCY 1700-1750 SOUTH STREET CENTERLINE STA 7+48.75	PP-05	4058.885	9306.185
CRD-12	POINT OF CURVE 1700-1750 SOUTH STREET CENTERLINE STA 8+52.50	PP-05	4058.171	9416.241
CRD-13	1700-1750 SOUTH STREET CENTERLINE STAT 14+22.31 END STREET	PP-06	4054.479	9986.036
CRD-14	1800 SOUTH STREET CENTERLINE STAT 0+00	PP-06	3700.052	8661.918
CRD-15	CCV-1 CAST IN PLACE STORM DRAIN	PP-07	3728.325	8677.368
CRD-16	POINT OF INTERSECTION 1800 SOUTH STREET AND 3800 WEST STREET	PP-07	3698.772	8862.414
CRD-17	CCV-2 CAST IN PLACE STORM DRAIN	PP-07	3723.621	9178.026
CRD-18	CCV-3 CAST IN PLACE STORM DRAIN	PP-08	3722.683	9393.651
CRD-19	CCV-3 CAST IN PLACE STORM DRAIN	PP-09	3719.874	9979.874
CRD-20	1800 SOUTH STREET CENTERLINE STAT 13+21+.81	PP-09	3692.659	9983.659
CRD-21	42" RCP PIPE ENTERING IN TO STORM DRAIN PUMP STATION	PP-10	4021.425	9110.371
CRD-22	18" STEEL FLOWLINE ON DETENTION POND INLET STRUCTURE	PP-10	3999.997	9097.712
CRD-23	18" STEEL FLOWLINE ON DETENTION POND OUTLET STRUCTURE	PP-10	3918.391	9116.501
CRD-24	SSMH - 13	PP-18	3736.581	9979.916
CRD-25	SSMH - 12	PP-18	3738.439	9668.251
CRD-26	SSMH - 11	PP-17	3741.048	9234.288
CRD-27	SSMH - 1	PP-16	3743326	8850.15
CRD-28	SDMH - 3	PP-14	4228.948	9152.399
CRD-29	SDMH - 4	PP-14	4209.172	9131.142
CRD-30	SDMH - 2	PP-14	4101.792	9272.451
CRD-31	SSMH - 7	PP-14	4093.789	9265.594
CRD-32	SSMH - 8	PP-14	4049.724	9371.005
CRD-33	SDMH - 1	PP-14	4058.421	9377.691
CRD-34	BEGINNING POINT OF CENTERLINE ON SOUTH WALKING TRAIL	PP-14	4032.892	9352.162
CRD-35	BEGINNING POINT OF CENTERLINE ON NORTH WALKING TRAIL	PP-14	4099.852	9357.055
CRD-36	SSMH - 6	PP-13	4290.683	9079.608
CRD-37	SSMH - 5	PP-13	4329.332	9000.319
CRD-38	SSMH - 3	PP-12	4339.196	8853.575
CRD-39	SSMH - 5	PP-11	4676.142	8855.513
CRD-40	SDMH - 5	PP-11	4038.752	8843.778
CRD-41	SSMH - 2	PP-11	4018.883	8851.733
CRD-42	SDMH - 5	PP-11	3835.688	8842.679
CRD-43	SSMH - 1	PP-11	3743.326	8850.151
CRD-44	SSMH - 9	PP-15	4048.074	9683.799
CRD-45	SSMH - 10	PP-15	4046.497	9983.151
CRD-46	SOUTH END OF WALKING TRAIL AT 1800 SOUTH STREET	PP-08	3728.592	9350.308

LEGEND

- 24" SD — Storm Drain Line Designation
- 8" SW — Sanitary Sewer LIne Designation
- 8" CW — Culinary Water Pipeline Designation
- 8" SW — Secondary Water Pipeline Designation
- SD — Storm Drain Manhole
- SS — Sanitary Sewer Manhole
- CB — Storm Drain Catch Basin
- X — Existing Fence Line
- ROW — Right of Way Line
- 4236 — Finish Grade Contours
- 4236 — Existing Grade Contours
- Temporary Sanitary Sewer Line Plug
- Gate Valve
- Center Line
- (0+20) Negative Stationing

ABBREVIATIONS

SDMH-I 4240.66: Storm Drain Manhole Pipe Inlet Flow Line Elevation
SDMH-O 4240.51: Storm Drain Manhole Pipe Outlet Flow Line Elevation
SSMH-I 4237.52: Sanitary Sewer Manhole Inlet Flow Line Elevation
SSMH-O 4237.15: Sanitary Sewer Manhole Outlet Flow Line Elevation
TEOP: Top Edge of Street Pavement
CB-1: Storm Drain Catch-Basin Call-Out
VPC: Vertical Curve-Point of Curve
VPI: Vertical Curve-Point of Tangent Line Intersection
VPT: Vertical Curve-Point of Tangent
SDR-35: PVC Gravity Flow Sanitary Sewer Pipe
C900: PVC Pressure Flow Culinary and Secondary Water Pipe

What NAVD are the elevations in?

- 4X4 BC-SD — 4'X4' STORM DRAIN BOX CULVERT
- EXISTING OPEN DRAINAGE CHANNELL W/ TOP OF BANK, FLOWLINE/CENTERLINE AND SIDE SLOPE DESIGNATION
- COMPACTED IMPORTED FILL TO GRADE LINE
- EXT 6 CW — Existing Culinary Water Pipeline Designation
- AVV — Air & Vacuum Valve Vault
- CWS — Culinary Water Meter & Service Connection

DETAIL REFERENCE

Civil Detail Call-Out: DETAIL A / CD-01
Detail Designation as Shown on Referenced Civil Detail Sheet
Reference Civil Detail Sheet

Cross-Section Detail Call-Out: SEC - 01 / CD-01
Cross-Section Designation as Shown on Referenced Civil Detail Sheet
Reference Civil Detail Sheet

Coordinate Call-Out: CRD-01 / CD-03
Coordinate Designation as Shown on Referenced Civil Detail Sheet
Reference Civil Detail Sheet

WEBER COUNTY ENGINEERING DEPARTMENT
FINAL SET APPROVED CONSTUCTION DRAWINGS

SITE BOUNDARY & TOPOGRAPHIC SURVEY
Boundary Consultants
Professional Land Surveyors
5554 West 2425 North, Hooper, UT 84315 (801) 729-1569
David E. Hawkes, PLS Utah No. 356548

DATE	SURVEY / SUBMITTAL
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REGISTERED PROFESSIONAL ENGINEER — JASON E. CHRISTENSEN — 4177 — STATE OF UTAH

Terrex Engineering & Construction, LLC
Land Development - Public Works - Water & Wastewater Utilities
P.O. Box 13059 Ogden, UT 84412 (801) 458-9647

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40.0 Acre - 56 Lot Residential Development

DEVELOPER: Lync Construction
GENERAL ADDRESS: 1800 South 3800 West, West Weber, Utah
LAND SURVEYOR: Boundary Consultants / David E. Hawkes, PLS
Technical Review & Construction Approval: Weber County Engineering

LEGEND & ABBREVIATIONS

SHEET GEN-03

TAYLOR WEST WEBER WATER IMPROVEMENT DISTRICT
CONSTRUCTION SPECIFICATIONS

SECTION 5 – SITE WORK REQUIREMENTS

SECTION 5.1
PIPELINE TRENCH EXCAVATION AND BACKFILL

5.1.1DESCRIPTION: The CONTRACTOR shall furnish all labor, materials, tools and equipment, and perform all work necessary to complete required excavations and backfills. Work shall also include required grading for completion of water lines and associated appurtenances all in accordance with the Drawings and these specifications.

The work shall include: clearing the site; loosening, loading, removing, transporting and disposing of materials, wet and dry, necessary for construction; sheeting and bracing; draining and dewatering; backfill of trenches, excavations, and pits; compaction, compaction testing, leveling, signing, detours, mobilization, and clean up.

5.1.2MATERIALS:

5.1.2.1PIPE FOUNDATION MATERIAL: Wherever the subgrade material does not afford a sufficiently solid foundation to support the pipe and superimposed load, where water must be drained to maintain a dry bottom for pipe installation, or where solid rock intrudes into the bottom of the trench, the subgrade shall be excavated to a minimum depth of 6 inches below pipe bedding and replaced with crushed rock or pit run gravel.

Gravel for pipe stabilization material shall be clean crushed rock or pit run gravel conforming to the following gradation:

Screen	Percent Passing
3"	100
3/4"	5

The gravel material shall be deposited over the entire trench width and compacted by tamping, rolling, or other suitable methods. In addition, the material shall be graded to produce a uniform and continuous support for pipe bedding material or installed pipe as specified.

5.1.2.1 PIPE BEDDING MATERIAL: Pipe bedding is fill material in the pipe zone. The pipe zone is defined as the envelope area 6 inches below the bottom of the pipe to
12 inches above the top of the pipe, and any lateral area within 9 inches of any pipe, pipeline structure or appurtenance.

Pipe bedding material may be excavated or imported material consisting of loose earth and sand or gravel conforming to the following gradation specifications:

•PIPE BEDDING MATERIAL

	Screen	Percent Passing
(If Ductile Iron or Concrete Pipe)	1"	100
(If PVC or HDPE Pipe)	¾"	100
	No. 4	85-95
	No. 30	20-30
	No. 200	5-15

5.1.2.3 SELECT BACKFILL MATERIAL: Select backfill material shall be granular, readily compactable and shall be free from alkali, salt, and petroleum products, roots, sod, limbs, and other vegetative matter, slag, cinders, ashes and rubbish, or other material that in the opinion of the ENGINEER may be objectionable.

Conforming to the following gradation specifications:

ScreenPercent Passing
6 inch100
No. 1050 max.
No. 4030 max.
No. 20015 max.

Material from excavation may be used if it will meet all requirements of select backfill, including compaction requirements as specified for type of surface improvement above trench.

5.1.3CONSTRUCTION:

5.1.3.1TRENCH EXCAVATION: Trench excavation shall be described as the excavation of quicksand, sand, crushed slag, clay, loam, earth, hardpan, boulder-clay, boulders, bituminous or gravel roadway surface, together with removal of old timber, railroad ties, stone-filled or stone abutments and piers, boundaries, concrete and stone masonry, and every other class of material.

5.1.3.2SOLID ROCK EXCAVATION AND BLASTING: Blasting will not be permitted, except by written permission from the ENGINEER on a case by case basis. If the CONTRACTOR seeks blasting permission, and is granted that permission by the ENGINEER, he must exercise great care and will be held responsible for and will assume all liability connected with the blasting and use of explosives. He will be liable for all damage to work on adjacent property, all injuries, lawsuits, complaints, and any other actual or alleged damages.

•BLASTING EXPERTS: Blasting shall be done only by experienced, qualified blasters. Blasting shall be done in accordance with the recommendations for best practice in Section 9 of AGC Manual of Accident Prevention in Construction and in accordance with the recommendations for best practice of the Institute of Makers of Explosives. Blasting shall comply with State and OSHA requirements.

•COVERED BLASTING: All blasting near dwellings must be covered with heavy mats to prevent flying rock fragments. No blasting shall be done within 15 feet of completed work.

•SAFETY RULES: The CONTRACTOR shall observe all safety rules for the handling of explosives, and in no case shall blasting caps be stored near the explosives. No blasting shall be done outside the regular working hours except with special approval.

•BLASTING NOT BID ITEM: Solid rock excavation is not a bid item. Should the CONTRACTOR choose to blast, the cost will be negotiated through a work directive and change order.

5.1.3.4TRENCH WIDTH: The trench shall be excavated such that the new pipe is always centered in the trench. The clear trench width at the horizontal diameter of the pipe must not be less than the outside diameter of the pipe plus 18 inches. The maximum clear width of trench at the top of the pipe must not be more than the outside diameter of the pipe plus 24 inches.

Backfill with earth under structures or valves will not be permitted. Any unauthorized excess excavation below the elevation indicated for foundation of any structures shall be backfilled in accordance with these specifications for "Select Backfill Material" and "Pipe Foundation Material", as appropriate, at the CONTRACTOR's expense.

5.1.3.5SHEETING, BRACING AND SHORING OF EXCAVATIONS: Excavations shall be sheeted, braced, and shored as required to support the walls of the excavations, to eliminate sliding and settling and as may be required to protect the workmen, the work in progress, and existing utilities, structures and improvements. All such sheeting, bracing, and shoring shall comply with the requirements of the Utah State Industrial Commission, Occupational Safety and Health Act (OSHA), and accident prevention and safety provisions of the contract.

The CONTRACTOR shall be fully responsible for the adequacy of methods and materials used in trench sheeting, bracing, shoring, and/or other systems provided to protect workmen. Injury to or death of workmen resulting from inadequate trench safety measures shall be the full and complete responsibility of the CONTRACTOR.

All damages resulting from lack of adequate sheeting, bracing and shoring shall be the responsibility of the CONTRACTOR, and the CONTRACTOR shall complete all necessary repairs or reconstruction at his own expense resulting from such damage.

Sheeting or shoring that does not extend below the centerline of the pipe may be removed at the discretion and responsibility of the CONTRACTOR after the trench backfill has been placed and compacted to a level 12 inches above the top of the pipe. Following removal of the sheeting or bracing, the trench shall be immediately backfilled and compacted.

5.1.3.6PIPE FOUNDATION AND BEDDING MATERIAL INSTALLATION: Pipe foundation and bedding material installation consists of preparing an acceptable pipe foundation, excavating the pipe groove in the prepared foundation and backfilling from the foundation to 12 inches above the top of the pipe. All piping shall be protected from lateral displacement and possible damage resulting from impact or unbalanced loading during backfilling operations by being adequately bedded.

•PIPE FOUNDATION: Shall consist of undisturbed natural soil in the bottom of the trench, or a built-up foundation of bedding material if conditions and these specifications so warrant. Wherever the trench subgrade material does not afford a sufficiently solid foundation to support the pipe and superimposed load, and/or where groundwater must be drained, or where solid rock intrudes into the trench bottom the trench shall be excavated below the bottom of the pipe bedding approximately 6 inches, and filled with clean, compacted pipe foundation material.

•PIPE BEDDING FROM PIPE FOUNDATION TO 12 INCHES ABOVE TOP OF PIPE: Bedding material shall be deposited and compacted in layers not to exceed 8 inches in uncompacted depth. Deposition and compaction of bedding materials shall be done simultaneously and uniformly on both sides of the pipe. All bedding materials shall be placed in the trench with hand tools or other approved method in such a manner that they will be scattered alongside the pipe and not dropped into the trench in compact masses.

•PIPE GROOVE: A pipe groove shall be excavated in the pipe bedding material to receive the bottom quadrant of the pipe so that the installed pipe will be true to line and grade. Bell holes shall be dug after the trench bottom has been graded. Bell holes shall be excavated so that only the barrel of the pipe bears on the pipe foundation.

5.1.3.7TRENCH BACKFILL: The trench shall be backfilled from 12 inches above the top of the pipe to the bottom of the required surface improvement section indicated on the Drawings, with select backfill material. No bituminous pavement, concrete, rock, or other lumpy material may be used in the backfill unless these materials are scattered and do not exceed 6 inches in any dimension. Decomposable or vegetative material shall not be used in backfilling.

5.1.3.8EXCAVATED WASTE MATERIAL: All excess material shall be hauled away from the construction site and legally disposed of in an area obtained by the CONTRACTOR. The CONTRACTOR shall be responsible for all rights-of-way, easements, and access associated with the disposal of excess excavated material. The CONTRACTOR shall further be responsible to obtain permission from the property owner or person(s) controlling the property where the CONTRACTOR plans to dispose of excavated material. No separate compensation will be made to the CONTRACTOR for disposal of excess excavated material.

Excavated material shall be piled in a manner that will not endanger the work and will avoid obstructing sidewalks and driveways. Gutters and irrigation ditches shall be kept clear or other satisfactory provisions made for street drainage.

Grading of the area surrounding the trenches, including excavated materials, shall be performed as necessary to prevent surface water from flowing into trenches, or other excavations.

5.1.3.9COMPACTION: Compaction shall be the responsibility of the CONTRACTOR. He shall select the methods to be used and carefully perform the work of backfilling and compaction to prevent damage to new or existing piping. Any new or existing piping damaged during the CONTRACTOR's work shall be replaced as directed by the ENGINEER with new piping.

5.1.3.10COMPACTION TESTING: Compaction testing requirements called for herein are only minimum and are required for the purpose of indicating, during construction, the quality of materials and compaction. Dips or uneven surface caused by post settlement of any trenches, excavation, fill, or embankment that show up within the 1 year warranty period shall be repaired by the CONTRACTOR at no additional cost to the OWNER.

•MAXIMUM DENSITY: Maximum density as used in these specifications shall be defined as the maximum density obtained in the laboratory by an AASHTO T-

180 test. In place density of compacted backfill will be determined by use of nuclear density determining equipment.

•COMPACTION PERCENTAGE: Unless otherwise specified, fills shall be compacted as indicated in the following tabulation:
LocationPercent of Maximum Density Backfill adjacent to structure90
Fill under structure95
Fill areas for pipeline construction95
Pipe bedding90
Trench backfill (Outside roadway right-of-way)90
Trench backfill (Inside roadway right-of-way)97

•COMPACTION CONFIRMATION: It shall be the responsibility of the CONTRACTOR to accomplish the specified compaction for backfill, fill, etc., and to control all earthwork operations by tests or other means approved by the ENGINEER to verify and confirm that the CONTRACTOR is complying at all times with the requirements of the specifications.

•INDEPENDENT TESTING: Material tests are required and shall be made by an independent testing laboratory hired and paid for by the entity commissioning the waterline installation, with primary responsibility for coordinating said testing being borne by the CONTRACTOR (e.g., if the District retains a contractor to install a waterline, the District will retain and pay for testing services; if a developer commissions the installation of a waterline, it will retain and pay for testing services; in either case, the contractor would be responsible for coordination with the testing service so that work may proceed at the contractor’s coordination). In areas where compacted backfill material is specified for pipeline trenches or around structures, the following amounts of satisfactory field density tests are required:

•Street crossings, every 50 feet of crossing length, or portion thereof: 2 Tests per 50-foot segment (18" above top of pipe and top of subbase).

•Trenches running parallel to the roadway: 2 Tests per 500 feet (18" above top of pipe and top of subbase).

•PROCTOR TESTS: Earth material specified in this section having specific gradation requirements shall have a soil gradation and proctor analysis performed to verify compliance and used as a basis for compaction tests. The number of times each type of material shall be tested is as follows:

•When material is being imported: 1 Test per borrow site. 1 Additional test per material change.

•When native material is approved: 1 Test per geographical area where the composition and material gradation visually remains unchanged.

The term "test" shall mean a single test with acceptable results, i.e., equal to or greater than the specified minimums. In the event compaction tests results fall below the required minimum, the CONTRACTOR shall recompact and test the material until a test with acceptable results is obtained.

•TEST RESULTS: Copies of test results prepared by the independent testing laboratory will be transmitted to the CONTRACTOR at the same time they are transmitted to the ENGINEER.

Successful performance of field density tests by the independent testing laboratory at any given location shall not relieve the CONTRACTOR of his responsibility to meet the specified density and warranty requirements for the complete project.

Additional tests directed by the ENGINEER shall be made at locations selected by the ENGINEER.

5.1.3.11RESTORATION OF CONSTRUCTION SITE: During the progress of the Work, the CONTRACTOR shall clean up all construction debris, excess excavation, and excess materials, and shall restore all fences, irrigation structures, ditches, culverts, and similar items. The CONTRACTOR shall stockpile the excavated trench material so as to do the least damage to adjacent grassed areas, or fences, regardless of whether these are on private property or public rights-of-way. All excavated materials shall be removed from grassed and planted areas and these surfaces shall be left in conditions equivalent to their original surface and free from all rocks, gravel, boulders, or other foreign materials.

The roadway including shoulders, slopes, ditches, and borrow pits shall be smoothly trimmed, and shaped by machinery, or other satisfactory methods, to the lines, grades and cross-sections, as established, or to equal or better condition than that which existed before construction efforts started, and shall be so maintained until accepted. Any surplus material not suitable for spreading along the road to widen the existing shoulder or raise the grade shall be hauled away or disposed of.

5.1.3.12CONTRACTOR'S RESPONSIBILITY: The CONTRACTOR will be responsible to see that the backfilling, consolidation and compaction are properly and adequately done. Settlement of trenches within a period of one year after final acceptance of the project, or longer period, if so required by the entity from whom excavation/cut permits were obtained for completion of the Work, shall be considered incontrovertible evidence of inadequate compaction, and the CONTRACTOR shall be responsible for correcting the condition in accordance with the provisions of these Specifications, including the replacement of the surface materials.

5.1.4MEASUREMENT AND PAYMENT: As specified in Section 1.4 of the Contract Documents.

End of Section

SECTION 5.2
PLACEMENT, REMOVAL AND RESTORATION OF SURFACE IMPROVEMENTS

5.2.1DESCRIPTION: The CONTRACTOR shall be responsible for the protection and the restoration or replacement of any improvements existing on public or private property at the start of work or placed during the progress of the work. Surfacing material removed will be loaded, hauled and disposed of by the CONTRACTOR in approved disposal areas at no additional expense to the OWNER. Existing improvements shall include but not be limited to permanent surfacing, curbs, gutters, sidewalks, planted areas, ditches, driveways, culverts, fences, signing, and walls. All improvements shall be reconstructed to equal or better, in all respects than the existing improvements removed. Provide all signing, barricades, flagman or signals as necessary to provide safe travel to the public.

Procedures may vary from those given herein, if so directed in writing by the owner of the subject improvements, and not contradictory to the Owner’s interests.

5.2.1.1FIELD VERIFICATION OF IMPROVEMENTS: In submitting a bid, the CONTRACTOR will be deemed to have carefully examined the site of the work and to have acquainted himself with all conditions relating to the protection and restoration of existing improvements. The ENGINEER does not guarantee that all improvements are shown on the Drawings, and it shall be the CONTRACTOR's responsibility to provide in his bid for the protection and restoration of all existing improvements whether or not each is provided for specifically on the Drawings and/or Bid Form.

5.2.2MATERIALS:

5.2.2.1GRAVEL SURFACE: Material for use on gravel surfaces shall be obtained from sound, tough, durable gravel or rock meeting the following requirements for grading:

Sieve Size	Percent Passing
1-inch sieve	100
1/2-inch sieve	79 - 91
No. 4 sieve	49 - 61
No. 16 sieve	27 - 35
No. 200 sieve	7 - 11

5.2.2.2UNTREATED BASE COURSE: Untreated base course shall be in accordance with Utah Department of Transportation Standard Specifications, 2012, Section 02721, Table 2:

Table 2
Gradation Limits

Sieve Size	Job Mix Gradation Target Band	Job Mix Gradation Tolerance
1½ inch	100	
1 inch	90-100	±9.0
¾ inch	70-85	±9.0
½ inch	65-80	±9.0
⅜ inch	55-75	±9.0
No. 4	40-65	±7.0
No. 16	25 -40	±5.0
No. 200	7-11	±3.0

5.2.2.3SUBBASE MATERIAL: Subbase material gradation shall be in accordance with Utah Department of Transportation Standard Specifications, 2012, Section 02741, GRANULAR BORROW

A.Classification A-1-a. Refer to AASHTO M 145.

B.Non-plastic, well-graded, 3 inch maximum.

5.2.2.4BITUMINOUS SURFACE COURSE: Bituminous surface course gradation shall be in accordance with Utah Department of Transportation Standard Specifications, 2012, Section 02056, Table 6:. Actual gradation to be used shall be approved by the ENGINEER.

Table 6

Aggregate Gradations (Percent Passing by Dry Weight of Aggregate)

Sieve Size		1 inch	¾ inch	½ inch	⅜ inch
Control Sieves	1½ inch	100.0			
	1 inch	90 - 100	100		
	¾ inch	<90	90 - 100	100	
	½ inch		<90	90 – 100	100
	⅜ inch			<90	90- 100
	No. 4				< 90
	No. 8	19-45	23-49	28-58	32-67
	No. 200	1-7	2- 8	2–10	2–10

5.2.2.5TACK COAT: Tack coat shall be SS-1 Diluted with an equal amount of water.

5.2.2.6CONCRETE: See Section 5.8 of these specifications.

5.2.2.7SOD AND VEGETATION: All materials shall be from sources approved by the ENGINEER; however, such approval does not relieve the CONTRACTOR from responsibilities for growth, maintenance and replacement as specified herein. When restoring damage from a pothole or trench in existing sod and vegetation, match the existing, surrounding materials.

5.2.2.8TOPSOIL: Topsoil shall be fertile, friable, natural loam, surface soil, reasonably free of clay lumps, brush, weeds, and other litter, and free of rocks, stumps, stones larger than 2 inches in any dimension, and other extraneous or toxic matter harmful to plant growth. Obtain topsoil only from naturally well-drained sites where topsoil occurs in a depth of not less than 4 inches. Do not obtain from bogs or marshes.

5.2.2.9OTHERS: Other materials may be required by the authorities having jurisdiction such as Local, State or Federal entities (e.g., irrigation company canals, city, county or state roads, Bureau of Reclamation canals). It is the Contractor’s responsibility to ensure that the improvement owner’s requirements are met.

5.2.3CONSTRUCTION:

5.2.3.1REMOVAL OF CONCRETE OR ASPHALT SURFACES: CONTRACTOR shall consult with the roadway owner before removing asphalt to ensure the requirements of the roadway owner will be met. Unless otherwise directed by the roadway owner, the following specification shall be adhered to. The pavement, sidewalk, curb and gutter, driveway, etc. shall be cut vertically along the lines forming the trench, or nearest full joint, in such a manner as to not cause damage to adjoining pavement, sidewalk, curb and gutter, driveway, etc. An undercut level at the rate of 1 inch per foot of thickness or an underlap joint shall be provided at the proposed junction between old and new surfaces. The portion to be removed shall be broken up in a manner that will not cause damage to the pavement or concrete outside the limits of the trench; however, any pavement damaged by operations outside the limits of the trench shall be replaced. Broken paving materials shall be removed immediately from the site of the work. The ENGINEER shall approve all saw cut locations.

5.2.3.2GRAVEL SURFACE: Where trenches are excavated through gravel surfaced areas such as roads and shoulders, parking areas, unpaved driveways, etc., the gravel surface shall be restored to a minimum depth of 4 inches. The gravel shall be placed in the trench at the time it is backfilled. The surface shall be maintained by blading, sprinkling, rolling, adding gravel, etc., to maintain a safe, uniform surface satisfactory to the ENGINEER. Excess material shall be removed.

5.2.3.3SUBBASE:
A.Finish granular borrow surface within ⌖ 0.1 ft of line and grade.
B.Compact borrow and backfill material in 6 inch layers to the specified density per 5.1.3.10 of these specifications, unless noted otherwise on the Drawings.

5.2.3.4BASE COURSE AND TEMPORARY GRADED SURFACE: On paved areas, base course shall be placed in the top of the trench to a depth such that the final compacted thickness of the base course below the bottom of the pavement shall be equal to the existing base course but not less than 10 inches. This base course layer shall be brought flush with the paved surface and maintained in a smooth, rut free condition until time for the pavement to be placed.

5.2.3.4TACK COAT: Tack coat shall be applied at the rate of 0.05 to 0.15 gal/SY. A hand sprayer or brush shall be used to apply tack coat to vertical faces of previously constructed bituminous pavement (over 1/2 hour hence) prior to placing an adjacent or parallel pass, curbs, gutters, slab edges, and all structures to be in actual contact with the bituminous pavement. Tack coat shall also be applied uniformly at the same rate to the horizontal top surface of each lift of bituminous pavement prior to placing the next lift of bituminous pavement to promote a bond between the two courses of pavement. None of the material shall penetrate into the pavement and for this reason the application should be limited.

Prior to applying the material, the surface to be treated shall be swept or flushed free of dust or other foreign material. Protect all surfaces not required to receive tack coat from any inadvertent application.

The temperature range of the tack coat at the time of application shall be such that the viscosity will be between 50 and 100 centistokes as determined in accordance with ASTM Designation D-2710.

Under no circumstances shall traffic be permitted to travel over the tacked surface. If detours cannot be provided, restrict operation to a width that will permit at least one-way traffic over the remaining portion of the roadbed. If one-way traffic is provided, the traffic shall be controlled in accordance with governing authority.

After application of tack coat, sufficient time shall be given to allow for complete separation of asphalt and water before paving operations begin. The tack coat shall be applied on only as many surfaces as will be paved against in the same day.

5.2.3.5 BITUMINOUS SURFACE: Trenches to be resurfaced shall be graded and rolled to provide a subgrade consisting of granular backfill and base course which is firm and unyielding. Density of the subgrade materials shall be 97 percent of AASHTO T-
180. Mud or other soft or spongy material shall be removed and the void filled with base course and rolled and tamped thoroughly in layers not exceeding 12 inches in thickness. The edges of trenches which are broken during subgrade preparation shall be removed and trimmed neatly before resurfacing.

Mixing, placing, spreading and compaction of a minimum 3-inch bituminous surface course (greater depths may be required as shown on the Drawings) shall conform to applicable parts of Utah Department of Transportation Standard Specifications, 2012, excluding pay factor allowances.

5.2.3.5.1 UDOT ROADWAY: When trenching occurs within a UDOT roadway, a 2" deep mill and fill is required: 20' on each side of the trench when crossing the traveled way, and from lane stripe to lane stripe on any lane, or portion of lane with trench construction within it. Pavement markings must be restored with new material similar to that which was removed.

5.2.3.6 CONCRETE CURBS, GUTTER, SIDEWALKS AND DRIVEWAYS: Existing improvements shall be removed and replaced to the next joint or scoring line beyond the actually damaged or broken sections; or in the event that joints or scoring lines do not exist or are three or more feet from the removed or damaged section, the damaged portions shall be removed by saw cutting full-depth.

All new concrete shall match, as nearly as possible, the appearance of adjacent concrete improvements. Where necessary, lampblack or other pigments shall be added to the new concrete to obtain the desired results.

Concrete forms shall be true to line and of sufficient strength to ensure against bulging or displacement.

Contraction and expansion joints shall match original construction in placement and size, unless otherwise required by local jurisdiction having authority.

Reinforcement shall be replaced as in original construction, and dowelled into edges of existing concrete, unless otherwise required by local jurisdiction having authority, and shall be installed in accordance with applicable CRSI and ACI Standards.

Finishing and curing shall be in accordance with local jurisdiction having authority.

5.2.3.7 PLANTED AREAS: Prior to placing topsoil and/or sod, examine and repair the subgrade as necessary to assure a smooth and even surface which will match grade and contours of surrounding undisturbed ground. Finish grade construction areas to match grade prior to construction activities. Assure that a positive slope away from all building walls is maintained for at least 10 feet to prevent runoff from approaching walls.

5.2.3.8 SPRINKLING SYSTEMS: Restore all sprinkling systems disturbed, removed, or damaged by construction operations in a condition at least equal to that prior to construction.

5.2.3.9 MISCELLANEOUS IMPROVEMENTS: All other improvements interrupted or removed to permit the construction specified herein shall be restored. Miscellaneous improvements to be restored shall include, but shall not be limited to, the following:

Traffic Signs Mail Boxes
Drainage and Irrigation Ditches Culverts
Canals and Canal Structures Bridges and Bridge Abutments Fences

5.2.3.10 PROTECTION: Protect all improvements that are not identified for removal or modification on the project Drawings, whether existing or restored, from damage, unless otherwise required by local jurisdiction having authority.

End of Section

SECTION 5.3
CULINARY WATERLINE AND APPURTENANCES

5.3.1 DESCRIPTION: The CONTRACTOR shall install all pipe, furnish and install: Valves, valve boxes, fire hydrants, service connections, meter boxes, check valves, air release valves, pipe bedding material; furnish and install all couplings, fittings, bolts, nuts, gaskets, jointing materials, and appurtenances as shown and specified, and as required for a complete and workable piping system.

All products incorporated into the project shall be new. All materials and products in contact with culinary water shall be certified compliant with NSF standard 60 or 61, as applicable.

5.3.2 MATERIALS:

5.3.2.1 PVC C-900 PIPE: (Refer to Sec. 5.5, "AWWA C-900 PVC Water Pipe").

5.3.2.2 DUCTILE IRON PIPE: (Refer to Sec. 5.6, "Ductile Iron Pipe ").

5.3.2.3 PVC C-900 PIPE: (Refer to Sec. 5.7, "AWWA C-906 Fused HDPE Piping for Potable Water").

5.3.2.4 FIRE HYDRANTS: Fire hydrants shall be of a "traffic model" type design conforming to AWWA C-502 Specifications. Hydrants shall be supplied with two 2-1/2- inch and one 4-1/2-inch nozzles. All nozzles shall have national standard threading. A one cubic yard gravel sump shall be provided at each hydrant for drainage. Fire hydrants shall be Mueller Super Centurion, Clow Medallion or District-approved equal.

5.3.2.5 ISOLATION VALVES: All main line isolation valves shall conform to Standard AWWA C509 for Resilient-Seated Gate Valves or C504 for Rubber-Seated Butterfly Valves, as applicable. All valves shall be designed for 150 psi working pressure or above. Buried main line valves shall be MJ x MJ. Buried hydrant lateral valves shall be FLG x MJ.

5.3.2.6 VALVE BOX AND COVER: All buried valves shall be installed complete with two-piece, cast iron, screw slip, 5-1/4-inch shaft valve box with adjustable height to bring the top of the valve box flush with the ground surface. The valve box and top section shall be from the same manufacturer, intended for use together and within the published dimension tolerances. The valve box shall not be less than 5 inches in diameter and shall have a minimum thickness of 3/16 inch. Valve boxes shall be "Tyler" or equal.

All valve boxes shall be provided with suitable base cover. The word "WATER" shall be cast on the cover. An extra deep cover shall have a minimum shaft length of 4", total minimum depth of 6" and a total minimum weight of 24 lbs. The extra deep valve box cover shall be P/N 06800045 by EJ, model M-8045 by D&L Foundry or approved equal.

5.3.2.7 FITTINGS: Fittings shall be ductile iron of the short body design and shall conform to AWWA Standards C-110 or C-153. Fittings inside structures or where otherwise noted on the drawings shall be ANSI Class 125 flanged design with full face rubber gaskets. All exterior surfaces of fittings shall be coated with a petroleum asphaltic coating unless otherwise noted on the Drawings. Tees for fire hydrant laterals shall be MJ x FLG.

5.3.2.8 COUPLINGS: Couplings shall be equal to the product of Romac, JCM, Smith- Blair, or Dresser with cast iron couplings being used on all ductile iron pipe. Couplings shall be of the straight, transition, or reducing style as required by the specific installation. All steel fittings shall be coated with a non-oxide coating and bolts shall be coated with a fluoropolymer in accordance with these specifications.

5.3.2.9 SERVICE SADDLES: Stainless steel, dual strap, nylon-coated with IPS threads, Romac 202NS or approved equal.

5.3.2.10 CORPORATION STOPS: Connections to main lines shall be made through all- metallic ground key corporation stops with MNPT inlet by CTS compression end connections.

5.3.2.11 PIPE FOR SERVICE CONNECTIONS: Pipe for water services shall be minimum 1" diameter 200 psi CTS poly pipe for potable water service, complying with AWWA Standard C901.

5.3.2.12 METER SETTER ASSEMBLY: A typical meter assembly (for a single family dwelling) shall consist of a copper setter, FORD VBHC 72-18W-44-44QNL, 18-inch riser with angle ball valve on the inlet side and Utah State approved dual check valve on the outlet side. Connection to service lines at the base of the setter shall be made with compression connections. The water meter shall be supplied by the District (the entity requesting the meter shall pay the District for the meter, in accordance with established practice).

5.3.2.13 METER BOXES AND LIDS: Meter boxes for standard residential meters shall be round, 18 inches inside diameter precast concrete boxes 30 inches deep. The lids for meter boxes shall be cast iron with a lifter worm lock, operated by a large pentagon head bolt, and shall be D&L L-2240-Universal with a recessed lid for an antenna and a 2" hole to accommodate meter reading, or approved equal. All meter boxes shall be installed and inspected in accordance with the approved drawings.

5.3.2.14 THRUST RESTRAINT: The material for thrust blocks shall be concrete which shall have a compressive strength of no less than 2,000 psi in 7 days. Rebar for valve and vertical elbow tie-downs shall be 60-ksi steel. Mechanical joint restraints shall be compatible with the pipe material on which they will be installed, and of standard manufacture by EBAA Iron, ROMAC or approved equal. Provide and install fluoropolymer-coated hardware on mechanical joint restraints.

5.3.2.15 UNDERGROUND WARNING TAPE AND LOCATION WIRE: The tape shall be a 2-inch metallic core with a polyethylene cover, blue in color, and have the words "Caution Water Line Buried Below" imprinted on it. The tape shall be Style No. 2WAT as manufactured by Seton Name Plate Company of New Haven, Connecticut, or approved equal. Copper location wire shall be at least #14 plastic coated solid wire.

5.3.2.16 CHECK VALVES: Check valves shall prevent reverse flow in the pipelines. The check valves shall have steel or ductile iron body with bronze trim, stainless steel spring, and resilient seat. The valves shall be Class 125 or better. The check valve shall be manufactured by Val-Matic or approved equal.

5.3.2.17 CONNECTION HARDWARE: Except where otherwise shown or specified, acceptable bolts and nuts are:
1) Below grade or subject to high humidity or non-potable submergence: Carbon steel:
a) Conforming to the requirements of ASTM A307 Grade A or higher yield and tensile strengths. The corresponding nuts shall conform to ASTM A563 Grade A or higher yield and tensile strengths.
b) All bolts and nuts shall be coated with fluoropolymer, TRIPAC 2000 coating system, or approved equal. Anti-seize compound shall not be utilized with the blue nuts.
2) Submerged service, potable: Stainless steel:
a) Conforming to the requirements of ASTM F593. The corresponding nuts shall conform to ASTM F594.
b) Nuts shall be finished with fluoropolymer, TRIPAC 2000 coating system, or approved equal. Anti-seize compound shall not be utilized with the blue nuts.
3) Above-grade, non-humid, non-submerged: Carbon steel:
a) Conforming to the requirements of ASTM A307 Grade A or higher yield and tensile strengths. The corresponding nuts shall conform to ASTM A563 Grade A or higher yield and tensile strengths.
b) All bolts and nuts shall be zinc plated in accordance with ASTM F1941 (Fe/Zn 5A).
c) Coatings shall not be applied to nuts or bolts except with the District's written approval.
4) Above-grade, weather-exposed, non-submerged: Carbon steel:
a) Conforming to the requirements of ASTM A307 Grade A or higher yield and tensile strengths. The corresponding nuts shall conform to ASTM A563 Grade A or higher yield and tensile strengths.
b) All bolts and nuts shall be hot-dip galvanized in accordance with ASTM A153.
c) Coatings shall not be applied to nuts or bolts except with the District's written approval.

5.3.2.18 BLOW OFF: Permanent (intended for use after construction and commissioning of the water line) blow off valves shall be premanufactured, below-grade, self-draining and non-freezing in a concrete pipe section with ring and cover labeled "WATER". Blowoffs to flush a 10" or smaller-diameter mainline shall be Model #78 (2") and for flushing a 12" to 16" mainline shall be a Model #7600 (4") by Kupferle Foundry. Temporary (limited to the duration of construction, after which they will necessarily be immediately removed to connect another length of pipe) blowoffs may be of the contractor's manufacture and of the size needed to produce a flow of 3.0 FPS through the mainline it is intended to flush. Pipe and fittings shall be brass or other material approved by the District Manager. Galvanized steel shall not be incorporated into any blow-off assembly.

5.3.2.19 OTHERS: Other materials as specified on the drawings.

5.3.3 CONSTRUCTION:

5.3.3.1 DELIVERY, STORAGE AND HANDLING: Load and unload pipe, fittings, specials, valves, and accessories by lifting with hoists or skidding to avoid shock or damage. Do not skid or roll pipe on skidways against pipe already on the ground.

Lifting of pipe during unloading and placing into the trench shall be done using two nylon slings placed at the quarter points of the pipe sections. The slings shall bear uniformly against the pipe. Under no circumstances shall the pipe or accessories be dropped into the trench. When not being handled, the pipe shall be supported on timber cradles or on properly prepared ground, graded to eliminate all rock being transported, the pipe shall be supported at all times in a manner which will not permit distortion or damage to the lining or coating. Any unit of pipe that, in the opinion of the ENGINEER, is damaged beyond repair by the CONTRACTOR shall be removed from the site of the work and replaced with another unit. No payment will be made for damaged pipe or for repairs to such damaged pipe. The use of chains or cables for handling the pipe is not permitted.

Each length of pipe shall be unloaded opposite or near the place where it is to be laid in the trench.

5.3.3.2 CONNECTIONS TO EXISTING MAINS: Connections to existing mains shall be made where indicated on the Drawings. The CONTRACTOR shall determine the exact pipe size and material and provide applicable valves, fittings, and couplings to make a smooth and straight transition into the existing pipe line(s). All connections shall be made and visually inspected by the District for leakage with the line under pressure prior to backfilling. Connections will normally be made with a tee, cross, or other similar type connector.

The CONTRACTOR must uncover the connection area and determine the needs for the connection prior to turning off the water. The water may be turned off Monday through Friday between the hours of 9:00 am and 4:00 pm only, with planned shutdowns starting only on Monday through Thursday. The OWNER must be given 24 hours notice prior to turning off the water to any portion of the system. The CONTRACTOR must make reasonable efforts to avoid disruption of water service.

5.3.3.3 WATER MAINS: Water mains shall be installed in accordance with the AWWA standard for the type of pipe and as may be further referenced in Section 5.3.2. The open ends of all pipelines under construction shall be covered and effectively sealed at the end of the day's work. All mainlines shall terminate with either a fire hydrant or appropriately-sized permanent blowoff.

5.3.3.4 FIRE HYDRANTS: All fire hydrants shall be installed with a 1 cubic yard gravel sump and concrete thrust block. See Construction Drawings for thrust blocking. Concrete shall not be placed around joints, bolts, or drain holes. Ensure that drain holes are free to drain to sump. Cover all metal contact areas with a poly wrap material prior to concrete placement. All hydrants shall be installed with the upper safety flange at least 2 inches and not more than 6 inches above ground level. All hydrants shall be installed with the steamer nozzle facing the street unless otherwise approved by the OWNER.

The location of fire hydrants shall be consistent with the requirements of the State- adopted fire code and as determined by the local fire code official.

Hydrant drains shall not be connected to, or located within, 10 feet of sanitary sewers. Where possible, hydrant drains shall not be located within 10 feet of storm drains.

5.3.3.5 ISOLATION VALVES: The CONTRACTOR shall furnish and install isolation valves at the locations shown on the drawings. The valves shall include either valve and

valve box with lid, or valve with hand wheel as indicated on the drawings. The valves shall have flanged or mechanical joint ends, non-rising stem, O-ring, seals, operating nut and extension as required, or hand wheel, and iron body-bronze resilient seat. The valves shall meet or exceed AWWA Standard C-504 or C-509.

Valves will be inspected, cleaned, set in line, and jointed to pipe with mechanical or flanged joints as indicated on the Drawings. All mainline valves shall have a concrete base poured in place onto which the valve is anchored against movement by straps on both sides of the valve housing. Steel anchor rods shall be rust-proofed or painted.

An isolation valve shall be placed on all 3 faces of new tees and all 4 faces of new crosses. An exception may be granted by the District when new valves on the same section of main line would be within 200' of each other, in which case only one new valve would be required. Valves shall be located at not more than 500-foot intervals in commercial districts and at not more than one block or 800-foot intervals in other districts. Where customers are widely scattered and where future development is not expected, the valve spacing shall not exceed one mile.

5.3.3.6 VALVE BOX AND COVER: All buried valves shall be installed complete with two-piece, cast iron, 5-1/4-inch shaft valve box with locking lid. The lid shall have the word "WATER" cast in the metal.

Valves and valve boxes shall be installed where shown on the Drawings. Valves and valve boxes shall be set plumb. Valve boxes shall be centered directly over the valve. Valves shall be aligned with property lines where possible. Earth fill shall be carefully tamped around the valve box to a distance of 4 feet on all sides of the box, or to the undisturbed trench face if less than 4 feet. Valve boxes shall have the interiors cleaned of all foreign matter before installation.

All valve boxes located in streets shall be installed as nearly to grade as possible. After the pavement is in place, the valve boxes shall be raised to grade, the surrounding asphalt shall be neatly cut to form a circular opening 2 feet and 6 inches in diameter with the valve box centered, and a 12 inch thick concrete collar shall be cast around the box. Valve boxes and collars in off-road areas shall also be similarly collared.

When the valve box is in a roadway with posted speeds equal to or over 40 MPH, an extra deep valve box cover shall be installed.

5.3.3.7 FITTINGS: Bends, tees, reducers, flange adapters, and adaptor couplings shall be inspected, cleaned, and jointed to pipe as specified by the manufacturer. Reaction or thrust blocking shall be applied at bends of 11-1/4 degrees and more, at plugs, caps, and at tees.

5.3.3.8 COUPLINGS: Couplings shall be installed where connecting two segments of pipe of the same nominal diameter in the same alignment, when repairing or making final connections. Mechanical restraint shall be provided at the coupling if the two pipes are different nominal diameters.

5.3.3.9 WATER SERVICE CONNECTIONS: Make service connections through a service saddle and install service lines as shown on the Drawings, or as directed by the OWNER's representative. Use teflon tape on all taps. Locate service taps in the upper quadrant of the main line, approximately 45 degrees from horizontal. The minimum

distance between taps is 24 inches, with a 5 degree stagger. Do not make service taps within 24 inches of the end of the main line.

Excavate and backfill in accordance with Section 5.1, "Pipeline Trench Excavation and Backfill". All work must be inspected by the District prior to backfilling. Pressure test all services before backfilling. Make no service connections until main line is fully accepted by the OWNER. Extend service line to meter and 5 feet beyond meter and plug as indicated on the Drawings.

Service laterals shall be installed in a straight line from the main to the meter and square to the main whenever possible. No couplings are allowed in service laterals unless approved in writing by the District Manager. If the service lateral must be extended, a new lateral shall entirely replace the existing lateral from main to meter, regardless of which end is extended.

Install a tracer wire with all service laterals. Ensure physical and electrical connectivity with the wire at the mainline. The wire shall be terminated with a neatly wound coil, 4 feet long in the meter box. All meter setter assemblies shall be no more than 20 inches and not less than 18 inches from finish ground level. The water meter shall be installed by the District.

Record station of service connection to main line and record location and depth of end of service line, tying distances to at least two surface landmarks. Sketch information on an 8-1/2 x 11 inch form and record any particular problems and submit to District Inspector before demobilizing from site.

5.3.3.10THRUST RESTRAINT: Thrust blocks shall be provided at reducers and valves where shown on the drawings, at all tees, plugs, and caps, and at bends deflecting 11- 1/4 degrees or more. Reinforcement bar shall be pre-bent before placement around valve or elbow, then temporarily spread apart for installation. Form hooks in both ends of rebar to extend completely under the valve or fitting.

Thrust blocks shall be placed between solid ground and the fitting to be anchored; the area of bearing on the pipe and on the ground in each instance shall be that shown on the Drawings. The block shall, unless otherwise shown or directed, be so located as to contain the resultant thrust force and so that the pipe and fitting joints will be accessible for repair.

Mechanical thrust restraints shall also be used at all locations where thrust blocks are called for. Mechanical thrust restraints shall be securely wrapped with 8 mil or greater polywrap and taped to prevent contact with thrust block concrete.

5.3.3.11 UNDERGROUND WARNING TAPE AND TRACE WIRE: The CONTRACTOR shall furnish and install an underground warning tape as the trench is backfilled. The tape shall be placed directly over the waterline and to a depth of 24 inches below the finished ground surface.

A plastic-coated copper trace (alternatively, "location") wire shall be in the bottom of the main line or service lateral pipe trench (when a new service lateral is pulled through an existing lateral, a tracer wire shall also be pulled with the new lateral) and accessible from the surface at each valve box (bring the wire up the outside of the bottom of each box and bring it inside the top section) and at each fire hydrant and blowoff. At fire

hydrants, the trace wire shall be brought above grade and coiled at least 2 times around the hydrant barrel below. At blowoffs, 4 feet of the trace wire shall be neatly coiled in the bottom of the box.

All mainline trace wires must be interconnected in intersections, at mainline tees and mainline crosses. At tees, the three wires shall be joined using a single 3-way lockable connector. At crosses, the four wires shall be joined using a 4-way connector. Use of two 3-way connectors with a short jumper wire between them is an acceptable alternative.
Direct bury wire connectors – shall include 2- and 3-way lockable connectors and mainline to lateral lug connectors specifically manufactured for use in underground trace wire installation. Connectors shall be dielectric silicon filled to seal out moisture and corrosion, and shall be installed in a manner to prevent any uninsulated wire exposure. Non- locking friction fit, twist on or taped connectors are prohibited.

5.3.3.12 SEPARATION OF WATER MAINS FROM SANITARY SEWER: The horizontal distance between pressure water mains and sanitary sewer lines shall be at least ten feet. Where a water main and a sewer line must cross, the water main shall be at least 18 inches above the sewer line. Separation distances shall be measured edge- to-edge (i.e. from the nearest edges of the facilities). Water mains and sewer lines shall not be installed in the same trench. Where local conditions make it impossible to install water or sewer lines at the separation distances required above, an exception to the standard may be possible. The entity seeking the exception shall initiate and pursue a request for a separation exception with the State Division of Drinking Water, in accordance with R309-550-7 of the State of Utah Administrative Rules.

5.3.3.13 BLOW OFF: A permanent blow off meeting District standards shall be installed at all dead end main lines that otherwise do not terminate at a fire hydrant. Blow offs shall not be connected directly to a sanitary sewer.

5.3.4 MEASUREMENT AND PAYMENT: As specified in Section 1.4 of the Contract Documents.

End of Section

SECTION 5.4
DISINFECTION AND TESTING OF WATER LINES

5.4.1 DESCRIPTION: Except as otherwise provided herein, the CONTRACTOR shall furnish all equipment, labor, and materials required for testing and disinfecting hydraulic structures and pipelines as specified. Water for testing and disinfecting will be furnished by the OWNER; however, the CONTRACTOR shall be responsible for coordinating with the OWNER the acquisition and use of the water for testing and disinfection procedures.

Disinfection shall be accomplished by chlorination in accordance with AWWA standard C-651. Each completed section shall be disinfected and tested prior to introduction into the drinking water system. Release of water from structures and pipelines, after completion of testing and disinfection, shall be in conformance with AWWA standard C- 651.

5.4.2 PROCEDURES:

5.4.2.1 PRELIMINARY CLEANING AND FLUSHING: Prior to both testing and disinfecting, all pipelines shall be thoroughly washed, flushed or blown out, under the direction of the OWNER. Flushing shall be accomplished through hydrants, valves,
blow-offs, or other means provided by the CONTRACTOR and approved by the OWNER sufficient to provide for a 3.0 foot per second (FPS) flushing velocity in the pipeline.
Where the OWNER determines that a 3.0 FPS flushing velocity is not practical, the greatest feasible flow for 2-3 volumes shall be achieved.

5.4.2.2 HYDROSTATIC TESTS: Prior to testing, all piping shall be flushed or blown out as appropriate. The CONTRACTOR shall test all piping either in sections or as a unit. Mortar-lined piping shall not be tested before the mortar lining has attained an age of
14 days. The test shall be made by placing temporary bulkheads in the pipe and filling the line slowly with water. Care shall be taken to see that air vents are installed at appropriate locations to evacuate air, and that all air vents are open during filling. After the piping or section thereof has been filled, it shall be allowed to stand under a slight pressure for a sufficient length of time to allow the mortar lining to absorb what water it will and to allow the escape of air from any air pockets. During this period, bulkheads, valves, and connections shall be examined for leaks. If any are found, corrective measures satisfactory to the OWNER shall be taken. The test shall consist of holding a minimum pressure of 200 psi on the section being tested for a minimum period of
2 hours. The test pressure shall be maintained within 5 PSI without the addition of makeup water for the duration of the test.

In the case of pipelines that fail to pass the prescribed leakage test, the CONTRACTOR shall determine the cause of the excessive leakage, shall take corrective measures necessary to repair the leaks, and shall again test the pipelines, all at no additional cost to the OWNER.

5.4.2.3 DISINFECTING PIPELINES:

•CHLORINATION: A chlorine-water mixture shall be applied by means of a solution- feed chlorinating device. The chlorine solution shall be applied at one end of the piping or pipeline through a tap in such manner that as the pipeline is filled with water, the dosage applied to the water entering the pipe shall be approximately 50 ppm. Care shall be taken to prevent the strong chlorine solution in the line being

treated from flowing back into the line supplying the water. Chlorine concentration shall be tested and verified by the OWNER.

•RETENTION PERIOD: Chlorinated water shall be retained in the pipeline long enough to destroy all non-spore-forming bacteria. This period shall be at least
24 hours. After the chlorine-treated water has been retained for the required time, the chlorine residual at the pipe extremities and at other representative points shall be at least 25 ppm.

•CHLORINATING VALVES: During the process of chlorinating the piping and pipelines, all valves and other appurtenances where possible shall be operated while the pipeline is filled with the heavily-chlorinated water.

5.4.2.4 FLUSHING: After both pressure testing and chlorination, all pipelines shall be flushed. Flushing shall be accomplished through fire hydrants, end of line blow offs with a minimum of 2-inch diameter or, the CONTRACTOR shall install a tap sufficient in size to provide for a 3-foot per second flushing velocity in the pipeline. Refer to the reproduction of Table 3 of AWWA Standard C651-14, below.

WEBER COUNTY ENGINEERING DEPARTMENT
FINAL SET APPROVED CONSTUCTION DRAWINGS

SITE BOUNDARY & TOPOGRAPHIC SURVEY
Boundary Consultants
Professional Land Surveyors
5554 West 2425 North, Hooper, UT 84315 (801) 729-1569
David E. Hawkes, PLS Utah No. 356548

DATE	SURVEY / SUBMITTAL
1/03/2020	Site Boundary and Topographic Survey
3/4/2021	Weber County Surveyor's Record Plat

Terrex Engineering & Construction, LLC
Land Development - Public Works - Water & Wastewater Utilities
P.O. Box 13059 Ogden, UT 84412 (801) 458-9647

DATE	REVIEWED	SUBMITTAL
7/25/2020	EH Christensen, SE, PE	50% TEC Review Submittal
9/30/2020	EH Christensen, SE, PE	90% Weber County Engineering Submittal
1/20/2021	EH Christensen, SE, PE	100% Weber County Engineering Submittal
4/30/2021	EH Christensen, SE, PE	Construction Ready Submittal

Stagecoach Estates
40.0 Acre - 56 Lot Residential Development

DEVELOPER: Lync Construction
GENERAL ADDRESS: 1800 South 3800 West, West Weber, Utah
LAND SURVEYOR: Boundary Consultants / David E. Hawkes, PLS
Technical Review & Construction Approval: Weber County Engineering

TAYLOR WEST WEBER WATER DISTRICT
CONSTRUCTION SPECIFICATIONS

SHEET GEN-05

Table 3 Required flow and openings (either taps or hydrants) to flush pipelines at 3.0 ft/sec (0.91 m/sec) (40 psi [276 kPa] rsidual pressure in water main)*

Pipe Di		Flow Required to Produce 3.0 ft/sec (approx.) Velocity in Main		Size of Tap Used in. (mm)			Number of Hydrant Outlets	
				1(25)	1-1/2 (38)	2 (51)		
in.	(mm)	gpm	(L/sec)	Number of Taps Required on Pipe**			2-1/2 in. (64 mm)	4-1/2 in. (114 mm)
4	(100)	120	(7.4)	1	-	-	1	1
6	(150)	260	(16.7)	-	1	-	1	1
8	(200)	470	(29.7)	-	2	-	1	1
10	(250)	730	(46.3)	-	3	2	1	1
12	(300)	1,060	(66.7)	-	-	3	2	1
16	(400)	1,880	(118.6)	-	-	5	2	1

*With a 40 psi (276 kPa) pressure in the main with the hydrant flowing to atmosphere, a 2-1/2 in. (64 mm) hydrant outlet will discharge approximately 1,000 gpm (63.1 L/sec); and a 4-1/2 in. (114 mm) hydrant outlet will discharge approximately 2,500 gpm (160 L/sec).

**Number of taps on pipe based on 3.0 ft/sec discharge through 5 ft (1.5m) of galvanized iron (GI) pipe with one 90 deg. elbow

5.4.2.5BACTERIOLOGICAL TESTING: The OWNER shall obtain three samples of water from the main line after final flushing, the failure of any one such test will result in starting the flushing and test sequence over again: 1) The first sample will be pulled and tested immediately after final flushing; 2) The second sample will be pulled and tested no less than 24 hours after the first sample is pulled from the same section of pipe; 3) If both of those tests come back negative, the tie-to-existing may take place, and a third and final sample pulled and tested; if the third sample returns a negative result, the section of pipeline will be accepted (this does not pertain to any surface improvements that may be needed).

5.4.3MEASUREMENT AND PAYMENT: Payment for cleaning, pre-flushing, hydrostatic testing, disinfecting, and final flushing shall be included in the lineal foot price of installed pipe.

End of Section

SECTION 5.5
AWWA C-900 PVC Water Pipe

5.5.1DESCRIPTION: The work includes providing and installing PVC AWWA C-900 water pipe with integral bell and spigot joints.

5.5.2MATERIALS:

5.5.2.1PIPE: Pipe shall comply with the latest version of AWWA Standard C-900, with material compound being 12454A, per ASTM D1784. Pipe shall be DR18 unless shown otherwise on the Drawings.

5.5.2.2JOINTS: The Elastomeric Seal (gasket) shall conform to ASTM F477. The gasketed joint assembly shall conform to ASTM D3139, and the installation of the C900 pipe shall conform to Uni-Bell-3, AWWA M23 installation guide.

5.5.2.3FITTINGS: Fittings shall be cast iron or ductile iron, iron pipe size for PVC application, and in accordance with AWWA C-110 (flanged fittings) or AWWA C-153 (MJ fittings). They shall be capable of withstanding, without bursting, hydrostatic tests of three times the rated water working pressure. The fittings shall be furnished with mechanical- or flange-joint gaskets conforming to AWWA C-111.

5.5.2.4SERVICE CONNECTIONS: Service connections to PVC plastic pressure pipe shall be by nylon coated, ductile iron, double stainless-steel strap service saddles, Romac 202NS, or approved equal specifically designed for type of mainline pipe.

5.5.2.5QUALITY ASSURANCE: Each standard and random length of pipe is to be tested to three times the class pressure of the pipe for a minimum of 5 seconds. The integral bell is to be tested with the pipe. Randomly selected samples shall be tested in accordance with ASTM D1599 to withstand, without failure, pressures listed below when applied in 60 to 70 seconds: DR-18, a minimum burst pressure of 775 PSI; DR-14, a minimum burst pressure of 985 psi.

5.5.3CONSTRUCTION:

5.5.3.1INSTALLATION: Under no circumstances shall the pipe or accessories be dropped into the trench. The trench bottom shall be stable, smooth and free of frozen material, clodded dirt, and stones over 3/4 inch in diameter. Bell holes should be provided at each joint for easier assembly and uniform support. Large rocks must be removed to provide 6 inches clearance in all directions from pipe and accessories. The pipe shall be installed with proper bedding providing uniform support under the pipe. Backfill materials shall be worked under the pipe to provide adequate haunching. Initial backfill material should be placed to a minimum of 12 inches over the pipe. All pipe embedment material shall be selected and placed carefully, avoiding stones over 3/4-inch, frozen lumps, and debris. At all times when work is in progress, all open ends of the pipe and fittings shall be securely closed to the satisfaction of the ENGINEER, so that no water, earth, or other substance will enter the pipe or fittings.

5.5.3.2UNDERGROUND WARNING TAPE AND LOCATION WIRE: See 5.3.3.11.

5.5.3.3GRAVEL FOUNDATION FOR PIPE: See also 5.1.3.6. Wherever the subgrade material does not afford a sufficiently solid foundation to support the pipe and superimposed load, and where groundwater must be drained, the subgrade shall be excavated to such depth as may be necessary and replaced with crushed rock or gravel compacted into place.

5.5.4MEASUREMENT AND PAYMENT Section 1.4.9 takes precedence over the following if there is a discrepancy between the two sections.

PVC AWWA C-900 WATER PIPE: PVC pipe measurement shall be per lineal foot of installed piping of the type, size and class shown on the Drawings and in the bid schedule (payment shall be made as part of another Bid Item if PVC pipe is not specifically included as a bid item). Measurement shall be along the centerline of the pipe as measured in the field following construction. No deduct in length for payment will be made for valve & fittings.

Payment will be made per Bid Item only after the surface restoration, including, but not limited to, gravel and asphalt restoration, has been completed and accepted.

Payment to install pipelines shall be at the unit price in the Bid Schedule. Payment shall be full compensation for mobilization, cutting asphalt pavement; unclassified excavation; imported material for pipe bedding; trench backfill, location tape; tracer wire, storing and installing the pipe, fittings, elbows and couplings not specifically identified as a separate bid item; removal and disposal of excess or rejected excavated materials; compaction; thrust blocks; pressure testing; disinfecting, dechlorination, flushing and other materials, equipment and labor related to placing the line into service. Payment shall also include compensation for restoration of miscellaneous improvements damaged during construction.

End of Section

SECTION 5.6 - DUCTILE IRON PIPE

5.6.1DESCRIPTION: This section covers the requirements for ductile iron pressure pipe materials, installation and inspection.

5.6.2MATERIALS:

5.6.2.1DUCTILE IRON PIPE: Ductile iron pipe shall conform to all requirements of AWWA C-151 and ANSI A-21.51 "Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand Lined Molds, For Water or Other Liquids." Minimum pressure class shall be 250 PSI.

5.6.2.2JOINTS:

•MECHANICAL JOINTS: All mechanical joints shall meet requirements of ANSI A-21.6 and ANSI 21.11. All gaskets surfaces shall be smooth and free from imperfections. All mechanical joint gaskets shall be less than one year old. Bolts shall meet all requirements of the above specifications, honoring all characteristics, tolerances, and tests. All bolts shall be of the proper size and length to match the size of pipe fitting as per drawings.

•PUSH-ON JOINTS: Push-on joints shall be used for main line ductile iron pipe for this project. All push-on joints shall meet the requirements of ANSI 21.11. Gaskets shall be free from defects and not over one year old. Lubricants shall be non-toxic and have no deteriorating effects on gasket materials. It shall not impart taste, odor or flavor to water in a pipe.

•FLANGED JOINTS: Flanged joints shall be bolted firmly with machine, stud or cap bolts of proper size. Flanges may be cast integrally with the pipe or may be screwed or threaded pipe. Flanges shall be faced and drilled and of proper dimensions and class, for size and pressure required. All flanges shall meet requirements of ANSI A 21.10, "American National Standard for Ductile Iron and Gray Iron Fittings."

Bolts and nuts, unless otherwise specified, shall be meet the requirements of
5.3.2.16. Bolts will be provided with standard hexagonal nuts and standard hexagonal heads. Bolts shall be of the diameter required for each flange and, when installed, shall be of length so that no more than 3/8 inch or less than
1/8 inch extends past face of nut. Gaskets shall be 1/16 inch thick, made of best quality sheet gasket material or equal and be certified to meet the requirements of NSF Standard 61. A gasket for each flange joint of proper size, ring type or full face shall be installed.

•COMPRESSION JOINTS: Compression joints shall be mechanical joint cast iron sleeve with armor guard gaskets, Rockwell 441 or Flange adaptor Rockwell Type 900 or approved equal, as specified on approved drawings.

5.6.2.3FITTINGS:

•MECHANICAL JOINT FITTINGS: Mechanical Joint Fittings shall conform to ANSI A 21.10," American National Standard for Ductile Iron and Gray Iron Fittings."

•PUSH-ON FITTINGS: Push-on fittings shall conform to ANSI A 21.10 with bells, sockets, and plain ends per ANSI A 21.11.

•FLANGED FITTINGS: Flanged fittings shall conform to ANSI 21.10.

All flanges shall be faced and drilled. Where cap screws or stud bolts are needed, flanges shall be tapped to support cap screws or stud bolts as per approved drawings.

5.6.2.4CEMENT MORTAR LINING: Ductile iron pipe and fittings shall be lined with cement mortar in accordance with the requirements of the "American National Standard for Cement Mortar Lining for Cast Iron and Ductile Iron Pipe and Fittings for Water" (ANSI A21.4 AWWA C104).

5.6.2.5ASPHALTIC COATING: Ductile iron pipe shall be supplied with an exterior asphaltic coating approximately 1 mil thick per applicable AWWA standards for ductile iron pipe and fittings, EXCEPT THAT all pipe and fittings installed above grade or in pipe galleries shall be supplied without an asphaltic coating or otherwise prepared for a primer and 2 coats of durable epoxy coating.

5.6.2.6INTERIOR PIPING COATING: All interior piping shall be prepared for and coated with a suitable primer and at least 2 coats of liquid epoxy to a DFT of at least 10 mil. TNEMEC N140 or equal. Color as determined by Owner.

5.6.2.7COATING OF PIPES INSIDE STORAGE TANKS: Pipe inside storage tanks shall NOT have a coal tar coating on the exterior but shall be externally coated with a two-part epoxy at least 12 mil DFT, meeting the requirements of NSF Standard 61. TNEMEC N140 or equal. Interior lining shall be the same as specified in 5.6.2.4 above.

5.6.3CONSTRUCTION:

5.6.3.1INSTALLATION: Ductile iron pipe shall be installed in accordance with "Installation of Ductile Iron Mains and Their Appurtenances" (ANSI/AWWA C600).

Tees, elbows, crosses, and reducers shall be used for changes in direction and outlets, unless otherwise specified on the drawings.

Anchors, thrust bolts, thrust blocks and mechanical joint restraints shall be placed at valves, elbows, tees, etc., as shown on the approved drawings or as directed by the ENGINEER.

Under no circumstances shall the pipe or accessories be dropped into the trench. All ductile iron pipe installation shall proceed on a stable foundation, with joints closely and accurately fitted. Joints shall be clean and dry, and a non-toxic joint lubricant, as recommended by the pipe supplier, shall be applied uniformly to the mating joint and gasket surfaces to facilitate easy, positive joint closure.

All pipe shall be installed with uniform bearing under the full length of the barrel, with suitable excavations being made to receive pipe bells and fittings.

Bedding material shall be compacted around the pipe to firmly bed the pipe in position. If adjustment of position of a pipe length is required after being laid, it shall be removed and rejoined as for new pipe installation. In addition to the above requirements, all pipe installation shall comply with the specific requirements of the pipe manufacturer.

Each pipe shall be laid true to line and grade and in such a manner as to form a close concentric joint with adjoining pipe and to prevent sudden offsets to the flow line. All joint offsets shall be made as specified in AWWA Standard for "Installation of Water Mains", C600. As work progresses, the interior of the pipe shall be cleared of dirt and superfluous materials. Where cleaning after laying is difficult because of small pipe size, a suitable swab or drag shall be kept in the pipe and pulled forward past each joint immediately after jointing as set, and pipe shall not be laid when conditions of the trench or weather is unsuitable for such work. At all times when work is in progress, all open ends of the pipe and fittings shall be securely closed to the satisfaction of the ENGINEER, so that no water, earth, or other substance will enter the pipe or fittings.

5.6.3.2UNDERGROUND WARNING TAPE AND LOCATION WIRE: See 5.3.3.11.

5.6.3.3PIPE FOUNDATION AND BEDDING MATERIAL INSTALLATION: See 5.1.3.6.

5.6.3.4CLEANING AND FLUSHING: Refer to Section 5.4, "Disinfection and Testing of Water lines".

5.6.4MEASUREMENT AND PAYMENT: Section 1.4.9 takes precedence over the following if there is a discrepancy between the two sections.

Ductile iron pipe measurement shall be per lineal foot installed piping of the type, size and class shown on the drawings and in the bidding schedule. Measurement shall be along the centerline of the pipe as measured in the field following construction. No deduct in length for payment will be made for valve fittings, manholes or structures.

Payment will be made per Bid Item only after the surface restoration, including gravel and asphalt restoration, has been completed and accepted.

Payment to install pipelines shall be at the unit price in the Bid Schedule. Payment shall be full compensation for mobilization, traffic control signs, devices and flag persons; cutting asphalt pavement; unclassified excavation; imported material for pipe bedding; trench backfill; location tape; storing and installing the pipe, fittings, elbows and couplings; removal and disposal of excess or rejected excavated materials; compaction; thrust blocks; pressure testing; and disinfecting, flushing and placing the line into service. Payment shall also include compensation for restoration of miscellaneous improvements damaged during construction.

No classification of excavated materials shall be made other than solid rock requiring blasting (refer to Section 5.2, "Pipeline Trench Excavation and Backfill"). Excavation shall include the removal and subsequent handling of all water, earth, shale, loose or cemented gravel, loose rock, and other materials of whatsoever nature excavated or otherwise removed in the performance of contract work.

End of Section
SECTION 5.7
AWWA C-906 FUSED HDPE PIPING FOR POTABLE WATER

5.7.1General Terms and Conditions

5.7.1.1Scope. This specification covers requirements for PE 4710 high-density polyethylene piping for potable water distribution and transmission mains. All work shall be performed in accordance with these specifications.

5.7.1.2Engineered and Approved Drawings. Potable water distribution and transmission main construction shall be performed in accordance with engineered construction Drawings for the work prepared under the direction of a Professional Engineer.

5.7.1.3Referenced Standards. Where all or part of a Federal, ASTM, ANSI, AWWA, etc., standard specification is incorporated by reference in these Specifications, the reference standard shall be the latest edition and revision.

5.7.1.4Licenses and Permits. A licensed and bonded Contractor shall perform all potable water distribution and transmission main construction work. The Contractor shall secure all necessary permits before commencing construction.

5.7.1.5Inspections. All work shall be inspected by an Authorized Representative of the Owner who shall have the authority to halt construction if, in his opinion, these specifications or standard construction practices are not being followed. Whenever any portion of these specifications is violated, the Project Engineer or his Authorized Representative, shall, by written notice, order further construction to cease until all deficiencies are corrected. A copy of the order shall be filed with the Contractor's license application for future review. If the deficiencies are not corrected, performance shall be required of the Contractor's surety.

5.7.1.6Submittals. Pipe specifications, stamping description, manufacturer's recommended joining procedures and certification of fusing technicians by pipe manufacturer as having fused, or been trained to fuse, pipe of the size specified within the 6 months preceeding the commencement of work under this contract.

5.7.2Polyethylene Pipe and Fittings

5.7.2.1Qualification of Manufacturers. The Manufacturer shall have manufacturing and quality assurance facilities capable of producing and assuring the quality of the pipe and fittings required by these Specifications. The Manufacturer's production facilities shall be open for inspection by the Owner or his Authorized Representative. The ENGINEER shall approve qualified Manufacturers.

5.7.2.2Materials. Black PE materials used for the manufacture of polyethylene pipe and fittings shall be PE 3408 or 4710 high density polyethylene meeting ASTM D 3350 cell classification 345464C or 445574C, respectively, and shall be listed in the name of the pipe and fitting Manufacturer in PPI (Plastics Pipe Institute) TR-4 with a standard grade HDB rating of 1600 psi at 73°F. Color material, when used, shall be the same except for meeting ASTM D 3350 cell classification 345464E.

The material shall be listed and approved for potable water in accordance with NSF Standard 61. When requested on the order, the Manufacturer shall certify that the materials used to manufacture pipe and fittings meet these requirements.

5.7.2.3Interchangeability of Pipe and Fittings. The same Qualified and Approved Manufacturer shall produce polyethylene pipe and fittings. Products such as fittings or flange adapters made by sub-contractors or distributors are prohibited.

5.7.2.4Polyethylene Pipe. Polyethylene pipe shall be manufactured in accordance with AWWA C901-96 for sizes 1-1/4" thru 3" IPS diameters and to the requirements of ASTM D3035. Pipe 4" IPS and DIPS sizes 4" and above shall be manufactured to the requirements of ASTM F714 and AWWA C906-99.

5.7.2.5Optional Service Identification Stripes for IPS Sized Pipe. IPS pipes shall be black. When requested as an option, IPS pipes shall have four, equally spaced, blue color stripes co-extruded into the pipe outside surface. Stripes printed on the pipe outside surface shall not be acceptable.

5.7.2.7Optional Color Shell. When requested as an option, a blue color shell co- extruded into the pipe outer surface shall permanently identify IPS or DIPS pipes.

5.7.2.8Polyethylene Fittings & Custom Fabrications. Polyethylene fittings and custom fabrications shall be molded or fabricated by the Approved Pipe Manufacturer. All fittings and custom fabrications shall be pressure rated for the same internal pressure rating as the mating pipe.

5.7.2.9Molded Fittings. Molded fittings shall be manufactured and tested in accordance with ASTM D 3261 and shall be so marked. Molded fittings shall be tested in accordance with AWWA C906.

5.7.2.9.1X-Ray Inspection. The Manufacturer shall submit samples from each molded fittings production lot to x-ray inspection.

5.7.2.10Fabricated Fittings. Fabricated fittings shall be made by heat fusion joining specially machined shapes cut from pipe, polyethylene sheet stock or molded fittings. Fabricated fittings shall be rated for internal pressure service at least equal to the full service pressure rating of the mating pipe. Fabricated fittings shall be tested in accordance with AWWA C906.

5.7.2.11Polyethylene Flange Adapters. Flange adapters shall be made with sufficient throughbore length to be clamped in a butt fusion-joining machine without the use of a stub-end holder. The sealing surface of the flange adapter shall be machined with a series of small v-shaped grooves (serrations) to promote gasketless sealing, or restrain the gasket against blowout.

5.7.2.12Back-up Rings & Flange Bolts. Flange adapters shall be fitted with back-up rings that are pressure rated equal to or greater than the mating pipe.

The back-up ring bore shall be chamfered or radiused to provide clearance to the flange adapter radius. Flange bolts and nuts shall be Grade 3 or higher.

5.7.2.13MJ Adapters. MJ Adapters 4" thru 16" may be provided with optional Stainless Steel Stiffener upon request. MJ Adapters 14" and above shall be provided with Heavy Duty Back-up Ring Kits. All MJ adapters 18" and above must be provided with Stainless Steel stiffeners.

5.7.2.14Compliance Tests. Manufacturer's inspection and testing of the materials. In case of conflict with Manufacturer's certifications, the Contractor, Project Engineer, or Owner may request retesting by the Manufacturer or have retests performed by an outside testing service. All retesting shall be at the requestor's expense, and shall be performed in accordance with these Specifications.

5.7.3Joining

5.7.3.1Heat Fusion Joining. Joints between plain end pipes and fittings shall be made by butt fusion. Joints between the main and saddle branch fittings shall be made using saddle fusion. The butt fusion and saddle fusion procedures used shall be procedures that are recommended by the pipe and fitting Manufacturer. The Contractor shall ensure that persons making heat fusion joints have received training in the Manufacturer's recommended procedure. The Contractor shall maintain records of trained personnel, and shall certify that training was received not more than 6 months before commencing construction. External and internal beads shall not be removed.

5.7.3.1.1Butt Fusion of Unlike Wall Thickness. Butt fusion shall be performed between pipe ends, or pipe ends and fitting outlets that have the same outside diameter and are not different in wall thickness by more than one Standard DR, for example, SDR 13.5 to SDR 17, or SDR 11 to SDR 13.5. Transitions between unlike wall thickness greater than one SDR shall be made with a transition nipple (a short length of the heavier wall pipe with one end machined to the lighter wall) or by mechanical means or electrofusion. SDR's for polyethylene pipe are 7.3, 9, 11, 13.5, 17, 21, 26, 32.5 and 41.

5.7.3.1.2Heat Fusion Training Assistance. Upon request and at the requestor's expense, training personnel from the Manufacturer or his Representative shall be made available.

5.7.3.2Joining by Other Means. Polyethylene pipe and fittings may be joined together or to other materials by means of (a) flanged connections (flange adapters and back-up rings), (b) mechanical couplings designed for joining polyethylene pipe or for joining polyethylene pipe to another material, (c) MJ Adapters or (d) electrofusion. When joining by other means, the installation instructions of the joining device manufacturer shall be observed.

5.7.3.2.1ID Stiffener and Restraint. A stiffener shall be installed in the bore of the polyethylene pipe when an OD compression mechanical coupling is used and when connecting plain end PE pipe to a mechanical joint pipe, fitting or appurtenance. External clamp and tie rod restraint shall be installed where PE

pipe is connected to the socket of a mechanical joint pipe, fitting or appurtenance except where an MJ Adapter is used.

5.7.3.3Branch Connections. Branch connections to the main shall be made with saddle fittings or tees. Polyethylene saddle fittings shall be saddle fused to the main pipe per 3.1.

5.7.4Installation

5.7.4.1General. When delivered, a receiving inspection shall be performed and any shipping damage shall be reported to the manufacturer within 7 days. Installation shall be in accordance with ASTM D 2774, manufacturer's recommendations and this specification. All necessary precautions shall be taken to ensure a safe working environment in accordance with all applicable safety codes and standards.

5.7.4.2Excavation. Trench excavations shall conform to the Drawings, as authorized in writing by the Project Engineer or his Approved Representative and in accordance with all applicable codes. The Contractor shall remove excess groundwater. Where necessary, trench walls shall be shored or reinforced, and all necessary precautions shall be taken to ensure a safe working environment.

5.7.4.3Large Diameter Fabricated Fittings. Not more than one plain-end connection of 16" IPS and larger fabricated directional fittings (elbows, tees, etc.) shall be butt fused to the end of a pipe length before placing the assembly into the trench. The remaining fitting connections shall be made in the trench using butt fusion, flange or other connection means in accordance with 3.2. Flange and other mechanical connections shall be assembled and tightened in accordance with the connection manufacturer's instructions and 4.4. Handling, lifting, moving or lowering a 16" IPS or larger fabricated fitting that is connected to more than one pipe length is prohibited. The installing contractor at his expense shall correct fitting damage caused by such improper handling.

5.7.4.4Mechanical Joint & Flange Installation. Mechanical joint and flange connections shall be installed in accordance with the Manufacturer's recommended procedure. Primed ductile iron backup rings shall be furnished and installed at all connections permitting such. MJ Adapters and flanges shall be centered and aligned to the mating component before assembling and tightening bolts. In no case shall MJ gland or flange bolts be used to draw the connection into alignment. Bolt threads shall be lubricated, and flat washers should be used under the nuts. Bolts shall be evenly tightened according to the tightening pattern and torque step recommendations of the Manufacturer. At least 1 hour after initial assembly, flange connections shall be re-tightened following the tightening pattern and torque step recommendations of the Manufacturer. The final tightening torque shall be as recommended by the Manufacturer. Bolts, nuts and washers shall be stainless steel and shall be liberally coated with a rubberized undercoating prior to placing backfill.

5.7.4.5Foundation & Bedding. See Section 5.1, PIPELINE TRENCH EXCAVATION AND BACKFILL.

5.7.4.6Pipe Handling. When lifting with slings, only wide fabric choker slings capable of safely carrying the load shall be used to lift, move, or lower pipe and fittings. Wire rope and chain are prohibited. Slings shall be of sufficient capacity for the load, and shall be inspected before use. Worn or damaged equipment shall not be used. Under no circumstances shall the pipe or accessories be dropped into the trench. At all times when work is in progress, all open ends of the pipe and fittings shall be securely closed to the satisfaction of the ENGINEER, so that no water, earth, or other substance will enter the pipe or fittings.

5.7.4.7Backfilling. See Section 5.1, PIPELINE TRENCH EXCAVATION AND BACKFILL. During embedment placement and compaction, care shall be taken to ensure that the haunch areas below the pipe springline are completely filled and free of voids. At all times when work is in progress, all open ends of the pipe and fittings shall be securely closed to the satisfaction of the ENGINEER, so that no water, earth, or other substance will enter the pipe or fittings.

5.7.4.8Protection against shear and bending loads. In accordance with ASTM D 2774, connections shall be protected where an underground polyethylene branch or service pipe is joined to a branch fitting such as a service saddle, branch saddle or tapping tee on a main pipe, and where pipes enter or exit casings or walls. The area surrounding the connection shall be embedded in properly placed, compacted backfill, preferably in combination with a protective sleeve or other mechanical structural support to protect the polyethylene pipe against shear and bending loads.

5.7.4.9Final Backfilling. See Section 5.1, PIPELINE TRENCH EXCAVATION AND BACKFILL.

5.7.5Testing.

5.7.5.1Fusion Quality. The Contractor shall ensure the field set-up and operation of the fusion equipment, and the fusion procedure used by the Contractor's fusion operator while on site. Upon request by the Owner, the Contractor shall verify field fusion quality by making and testing a trial fusion. The trial fusion shall be allowed to cool completely; then test straps shall be cut out and bent strap tested in accordance with ASTM D 2657. If the bent strap test of the trial fusion fails at the joint, the field fusions represented by the trial fusion shall be rejected. The Contractor at his expense shall make all necessary corrections to equipment, set-up, operation and fusion procedure, and shall re-make the rejected fusions.

5.7.5.2Hydrostatic Leak Testing. This hydrostatic leak test procedure consists of filling, an initial expansion phase, a test phase, and depressurizing. There are two alternatives for the test phase. Leak testing shall be observed by the OWNER or ENGINEER.

5.7.5.2.1Filling. Fill the restrained test section completely with water.

WARNING – Ensure that there is no air trapped in the test section. Failure with entrapped air can result in explosive release and result in death or serious bodily injury. Use equipment vents at high points to remove air.

5.7.5.2.2Initial Expansion Phase. Gradually pressurize the test section to test pressure, and maintain test pressure for three (3) hours. During the initial expansion phase, polyethylene pipe will expand slightly. Additional test liquid will be required to maintain pressure. It is not necessary to monitor the amount of water added during the initial expansion phase.

5.7.5.2.3Test Phase – Alternate 1. Immediately following the initial expansion phase, reduce test pressure by 10 psi, and stop adding test liquid. If test pressure remains steady (within 5% of the target value) for one (1) hour, no leakage is indicated.

5.7.5.2.4Test Phase – Alternate 2. This alternative is applicable when the test pressure is 150% of the system design pressure.

Immediately following the initial expansion phase, monitor the amount of make-up water required to maintain test pressure for two (2) hours. If the amount of make-up water needed to maintain test pressure does not exceed the amount given below, no leakage is indicated.

L= (SxDxP(1/2))/148,000

Where:
L = Leakage, gallons per hour
S = Length of pipe tested, in feet
D = Nominal diameter of piping, inches
P = Average pressure during test, pounds per square inch x = multiplication symbol.

End Section

5.8.1DESCRIPTION: This section of the specifications defines materials to be used in all portland cement concrete work and requirements for mixing, placing, finishing, and curing.

5.8.2MATERIALS: Materials used in portland cement concrete and reinforcing of portland cement concrete shall meet the following requirements:

5.8.2.1CEMENT: Portland cement shall be Type II or as approved by the Engineer and shall comply with the Standard Specification for Portland Cement, ASTM C-150. NEITHER POZZOLANS NOR SILICA FUME SHALL BE USED.

5.8.2.2AGGREGATES: Concrete aggregates shall conform to Tentative Specifications for Concrete Aggregates, ASTM C-33.

5.8.2.3WATER: Water used in mixing concrete shall be clean and free from oil, acid, salt, injurious amounts of alkali, organic matter or other deleterious substances.

5.8.2.4ENTRAINING AGENT: An air-entraining agent shall be used in all concrete exposed to the weather. The agent shall conform to ASTM Designation C-175 and C-260.

5.8.2.5ADMIXTURES: No admixtures unless approved by the Engineer. Calcium chloride shall not be used in reinforced concrete.

5.8.2.6FLY ASH: No fly ash shall be added without mix design approved by the Engineer.

5.8.2.7REINFORCED STEEL: All bar material used for reinforcement of concrete shall be intermediate grade steel free of rust conforming to the requirements of ASTM Designation A-615 GR-60 and shall be deformed in accordance with ASTM Designation A-305.

5.8.2.8WELDED WIRE FABRIC: Welded wire fabric for concrete reinforcement shall conform to the requirements of ASTM A-185.

5.8.3CONSTRUCTION: For the purpose of practical identification, concrete has been divided into four classes: Flowable fill, Class A, B, and C. Basic requirements and use for each class are defined as follows:

Flowable Fill: Sand aggregate.
If used as trench fill: Minimum compressive strength shall be 50 PSI and maximum compressive strength shall be 150 PSI.

If used for pipeline abandonment fill: Minimum compressive strength shall be 50 PSI. Self-consolidating concrete (also known by some suppliers as "pump prime") may be used at the contractor's option and cost, to improve pumpability and reduce the number of injection points.

Class	Minimum Cement (sacks/cy)	Minimum 28-day Comp. Strength (psi)	Primary Use
A	6	4000	Reinforced Structural Concrete
B	6	3500	Sidewalks, curbs, and gutters, cross gutters, pavements, and non-reinforced footings and foundations
C	5	2500	Thrust blocks, anchors, mass concrete

Note: Above specifications contain 94 pound sacks of Portland Cement.

All concrete shall also comply with the following requirements.

AGGREGATES: The maximum size of the aggregate shall be not larger than one-fifth of the narrowest dimension between forms within which the concrete is to be cast, nor larger than three-fourths of the minimum clear spacing between reinforcing bars or between reinforcing bars and forms. For non-reinforced concrete slabs, the maximum size of aggregates shall not be larger than one- fourth the slab thickness.

WATER: Sufficient water shall be added to the mix to produce concrete with the minimum practicable slump. The slump of mechanically vibrated concrete shall not exceed four inches. NO concrete shall be placed with a slump in excess of five inches. The maximum permissible water-cement ratio (including free moisture on aggregates) shall be 5 and 5-3/4 gallons per bag of cement respectively for Class A and B air entrained concrete.

AIR-ENTRAINING: Air content for air-entrained concrete shall comply with the following:

Course Aggregate Size (in.)	Air Content %
1-1/2 to 2-1/2	5 +/- 1
3/4 or 1	6 +/- 1
3/8 or 1/2	7 +/- 1

The air-entraining agent shall be added as liquid to the mixing water by means of mechanical equipment capable of accurate measurement and control.

5.8.3.1FORMS: Forms shall be substantially built and adequately braced to withstand the liquid weight of concrete. All linings, studding, walling and bracing shall be such as to prevent bulging, spreading, or loss of true alignment while pouring and displacement of concrete while setting. Metal forms shall be used for sidewalk work unless otherwise specified by the Engineer. All edge forms for sidewalk pavements, curbs, and gutters shall be of sufficient rigidity and adequately braced to accurately maintain line and grade. Prior to concrete placement, all forms shall be lightly coated with oil to prevent concrete adhesion to form materials.

Exposed vertical and horizontal edges of the concrete in structures shall be chamfered by the placing of molding in the forms or as directed by the Engineer and as indicated in the Drawings.

FORM STRIPPING: Forms shall remain in-place for at least the following time periods after completion of a concrete pour in a given section of forms:

Walls and columns:24 hours Roof deck:10 days

5.8.3.2JOINTS: Joints shall be provided for sidewalk and curb and gutter as follows:

SIDEWALKS: Shall have scribed joints at intervals of 4 feet which joints shall be approximately 3/16" wide and be approximately 1/4 of the total slab thickness. In addition, 1/2-inch expansion joints shall be provided at 50-foot intervals and at locations where sidewalks adjoin curbs or existing sidewalks, driveways, building walls or aprons. Expansion joints shall be provided at 4-foot intervals where manholes, valve boxes or meter boxes are located.

5.8.3.3REINFORCEMENT AND EMBEDDED ITEMS: Reinforcing steel shall be clean and free from rust, scale, paint, grease or other foreign matter which might impair the bond. It shall be accurately bent and shall be tied to prevent displacement when concrete is poured. Reinforcing steel shall be held in place by only metal or concrete ties, braces and supports. No steel shall extend from or be visible on any finished surface and shall have a minimum of 1 1/2" concrete cover. Bars shall be grade 60.

The Contractor shall use concrete chairs for holding the steel away from the subgrade, and spreader or other type bars for securing the steel in place. The spreader bars shall be not less than 3/8-inch in diameter.

5.8.3.4PREPARATIONS: Before batching and placing concrete, all equipment for mixing and transporting the concrete shall be cleaned, all debris and ice shall be removed from the places to be occupied by the concrete, forms shall be thoroughly wetted or oiled, and masonry filler units that will be in contact with concrete shall be well drenched and the reinforcements shall be thoroughly cleaned of ice or other coatings. Water shall be removed from spaces to receive concrete. When placing concrete on earth surfaces, the surfaces shall be free from frost, ice, mud, and water. When the subgrade surface is dry soil or pervious material, it shall be sprayed with water immediately before placing of concrete or shall be covered with waterproof sheathing paper or a plastic membrane. No concrete shall be placed until the surfaces have been inspected and approved by the Engineer or Inspector.

COMPACTION: All subgrade and backfill materials shall be compacted in accordance with Section 5.1.3.10.

5.8.3.5CONCRETE MIXING: All concrete shall be ready-mixed and delivered in accordance with ASTM C-94. The concrete shall be mixed until there is a uniform distribution of the materials. Sufficient water shall be used in mixing concrete to produce a mixture which will flatten and quake when deposited in place, but not enough to cause it to flow. Sufficient water shall be used in concrete in which reinforcement is to be embedded, to produce a mixture which will flow sluggishly when worked and which, at the same time, can be conveyed from the mixer to the forms without segregation of aggregate. In no case shall the quantity of water used be sufficient to cause the collection of a surplus in the forms or exceed the maximum allowable slump as specified in 5.8.3.

5.8.3.6DEPOSITING: Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. The concrete placing shall be carried on at such a rate that the concrete is at all times plastic and flows readily into the corners of forms and reinforcing bars. No concrete that has partially hardened or been contaminated by foreign material shall be deposited in the work, nor shall retempered concrete be used. No concrete shall be dropped more than 3 feet. Concrete delivered to the job site having a temperature that exceeds 90 degrees Fahrenheit shall not be placed. Concrete cooling methods during hot weather will be approved by the Engineer.

All concrete in structures shall be vibrator compacted during the operation of placing, and shall be thoroughly worked around reinforcement and embedded fixtures and into the corners of the forms.

CONSTRUCTION JOINTS: All construction joints shall be located and prepared as shown on the drawings or otherwise approved in writing by the Engineer. Unanticipated cold joints may be cause for rejection of the entire poured section in which the cold joint is located, at the sole discretion of the Engineer, in consultation with others. Rejected sections shall be demolished and re-poured by the Contractor as specified at no additional cost to the Owner.

5.8.3.7PLACING CONCRETE IN COLD WEATHER: No concrete shall be poured where the air temperature is lower than 40 degrees Fahrenheit, at a location where the concrete cannot be covered or protected from the surrounding air. Where concrete is poured below a temperature of 35 degrees Fahrenheit the ingredients of the concrete shall be heated so that the temperature of the mixture shall not be less than 50 degrees or more than 100 degrees Fahrenheit. Before mixing, the heated aggregates shall not exceed 125 degrees Fahrenheit and the temperature of the heated water shall not exceed 175 degrees Fahrenheit. Cement shall not be added while the temperature of the mixed aggregates and water is greater than 100 degrees Fahrenheit. When there is likelihood of freezing during the curing period, the concrete shall be protected by means of an insulating covering and/or heating the concrete for a period of not less than 7 days after placing. The temperature must be maintained at a minimum of 40 degrees Fahrenheit. Concrete shall not be placed on frozen soil. Equipment for protecting concrete from freezing shall be available at the job site prior to placing concrete. Particular care shall be exercised to protect edges and exposed corners from freezing. In the event heating is employed, care shall be taken to insure that no part of the concrete becomes dried out or is heated to temperatures above 90 degrees Fahrenheit. The housing, covering, or other protection used shall remain in place and intact at least 24 hours after the artificial heating is discontinued. Combustion heaters shall not be used during the first 24 hours unless precautions are taken to prevent exposure of the concrete to exhaust gases that contain carbon dioxide.

5.8.3.8FINISHING:

FORMED SURFACE FINISHES - Provide the following finishes unless indicated or shown otherwise on the drawings.

ROUGH FORM FINISH - Applies to all surfaces not exposed to view such as surfaces in contact with earth backfill. Repair defects and patch tie holes. Remove fins exceeding 1/4 inch in height. Otherwise leave surfaces with the texture imparted by the forms.

SMOOTH FORM FINISH - Applies to all exposed surfaces and interior surfaces of vaults and pits. Use form facing material to produce a smooth, hard, uniform surface.
Support with backing capable of preventing specified deflection. Do not use material with raised grain, torn surfaces, worn edges, patches, dents, or other defects which will impair the texture of the concrete surface. Keep the number of seams to a minimum. Repair and patch all tie holes and defects. Remove all fins.

GROUT CLEANED FINISH - Smooth rubbed finish shall be produced by "brush-off" sandblasting or grinding with a stone wheel or grinder on all exposed wall surfaces prior to filling holes to expose all holes near the surface of the concrete. The wall surface shall then be rubbed with a mortar consisting of one part portland cement and 1-1/2 parts of fine sand passing the 100 screen with enough water and an emulsified bonding agent to have the consistency of thick creme. The wall surface shall be thoroughly wetted. Apply the grout by rubbing it over the entire area with clean burlap, sponge rubber floats, or trowels. Surface shall be wiped clean and most cured.

SLAB FINISHES - Unless specified or otherwise shown on the drawings, apply finishes to slabs as follows:

FLOATED FINISH - Use for surfaces to be trowel finished or to be broom finished. After the concrete has been placed, consolidated, struck off, and leveled, do not work further until water sheen has disappeared and the surface has been stiffened. When water sheen has disappeared and surface has stiffened, float with a hand float or with a bladed power trowel equipped with float shoes, or with a powered disc float. During or after the first floating, planeness of surface shall be checked with a 10-ft. straightedge applied at not less than two differed angles. Cut down all high spots and fill all low spots to produce a surface level tolerance of 1/4 inch in 10 feet throughout. Then refloat immediately to a uniform sandy texture.

TROWELED FINISH - Use for interior floors intended as walking surfaces. The surface shall first be float-finished as specified above. Next, power trowel followed by hand troweling. The first troweling after power floating shall produce smooth surface which is free of defects but which may still show some trowel marks. Additional troweling shall be done by hand after the surface has hardened. Accomplish final troweling when a ringing sound is produced as the trowel is moved over the surface. Thoroughly consolidate surface by the hand troweling until the finished surface is free of trowel marks, uniform in texture and appearance and level within a tolerance of 1/4 inch in 10 feet in all directions. On surfaces intended to support floor coverings, defects which show through the floor covering shall be removed by grinding.

BROOM OR BELT FINISH - Use for exterior horizontal walks and slabs. Immediately after the concrete has received a float finish as specified above, provide a coarse transverse scored texture by drawing a broom or burlap belt across the surface.

5.8.3.9CURING AND PROTECTION: As soon as the concrete has hardened sufficiently to prevent damage, the finished surface shall be protected for curing one of the following ways:

Application of a curing compound, conforming to "Specifications for Liquid Membrane- Forming Compounds for Curing Concrete" ASTM C-309. The compound shall be light in color and shall be applied in accordance with the manufacturers recommendations immediately after any water sheen, which may develop after finishing has disappeared from the concrete surface.

Ponding of water on the surface or continuous sprinkling. Application of light colored waterproof plastic materials, conforming to "Specifications for Waterproof Sheet Materials for Curing Concrete" ASTM C-171, placed and maintained in contact with the surface of the concrete. The freshly finished surface shall be protected from hot sun and drying winds until it can be sprinkled or covered as above specified. The concrete surface must not be damaged or pitted by rain. The contractor shall provide and use, when necessary, sufficient tarpaulins to completely cover all sections that have been placed within the preceding twelve (12) hours.

The Contractor shall erect and maintain suitable barriers to protect the finished surface. Any section damaged from traffic or other causes occurring prior to its official acceptance, shall be repaired or replaced by the Contractor at his own expense in accordance with these specifications.

Defective concrete conditions or surfaces shall be removed, replaced, or repaired, without further cost to the OWNER, in accordance with these specifications.

5.8.3.10CONCRETE TESTING: The Engineer may order the taking of concrete test cylinders to check the required compressive strengths. If taken, samples will be made in accordance with ASTM C172 and tested as follows:

a.Air Content: Test for air content shall be performed in accordance with ASTM C 173 or ASTM C 231. A minimum of 1 test shall be conducted each time a slump test is made.

b.Slump: At least 1 slump test shall be made on randomly selected batches of each mixture of concrete for every 50 cubic yards of ready-mixed concrete delivered to the job site. Also note the time batched at the plant and the starting time when unloading began at the site. Tests shall be performed in accordance with ASTM C 143.

c.Temperature: Concrete and air temperatures shall be measured and recorded with each set of cylinders and the air temperature shall also be recorded when the air temperature at the site is 40 degrees F or below and/or 90 degrees F or above.

EVALUATION AND ACCEPTANCE OF CONCRETE

a.Frequency of Testing: Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, nor less than once for each 50 cubic yards of concrete, nor less than once for each 3000 square feet of surface area for slabs or walls. If this sampling frequency results in less than 5 strength tests for a given class of concrete, tests shall be made from at least 5 randomly selected trucks or from each truck if fewer than 5 truck loads are used. Field cured specimens for determining form removal time or when a structure may be put in service shall be made in numbers directed to check the adequacy of curing and protection of concrete in the structure. The specimens shall be removed from the molds at the age of 24 hours and shall be

cured and protected, insofar as practicable, in the same manner as that given to the portion of the structure the samples represent.

b.Testing Procedures: Cylinders for acceptance tests shall be molded and cured in accordance with ASTM C 31. Cylinders shall be tested in accordance with ASTM C
39. A strength test shall be the average of the strengths of two cylinders made from the same sample of concrete and tested at 28 days or at another specified test age.

c.Evaluation of Results: Concrete specified on the basis of compressive strength will be considered satisfactory if the averages of all sets of three consecutive strength test results equal or exceed the specified strength and no individual strength test result falls below the required strength by more than 500 pounds per square inch.

d.Unless noted otherwise, make a minimum of four (4) concrete cylinders each time a test is required. When concrete is being placed in suspended slabs, beams and retaining walls make two (2) extra cylinders that must be cured on site. The extra cylinders will be used to determine when to remove forms and/or when to backfill.

In-place concrete may be cored for testing. Cost of all laboratory testing shall be the responsibility of the Owner. Any retesting required because of test failures shall be the responsibility of the Contractor. All concrete delivered to the job site shall be accompanied by a ticket specifying: bag mix, air content, etc. Said ticket shall be given to the Engineer's Inspector who may field check slump and air entrainment compliance.

5.8.3.11Miscellaneous: All other items, including, but not limited to, waterstops and joint sealant, shall be as shown on the Drawings.

End of Section

SECTION 5.9 EARTHWORK

5.9.1DESCRIPTION: Extent of earthwork is indicated on drawings. Preparation of bedding of pipe and trenching is included in Section 5.1 "Trench Excavation and Backfill".

"Excavation" consists of removal of material encountered to subgrade elevations indicated and subsequent relocation of materials removed. Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction. "Embankment" includes compacted backfill in specified lifts and densities.

A copy of the geotechnical report prepared for this project as appended to this specification book for the information of the CONTRACTOR.

5.9.2MATERIALS:

5.9.2.1SATISFACTORY MATERIALS: Materials are defined as those complying with ASTM D2487 soil classification groups GW, GP, GM, SM, SW and SP.

5.9.2.2UNSATISFACTORY SOIL MATERIALS: Unsatisfactory soil materials are defined as those complying with ASTM D2487 soil classifications groups GC, SC, ML, CL, CH, OL, OH and PT.

5.9.2.3STRUCTURAL FILL: Structural fill for sub-grade shall be a well-graded material, either natural or crushed, free from vegetable material and lumps or balls of clay. The 3-inch minus structural fill shall consist of well-graded sandy gravels and 5% to 15% fines (materials passing a No. 200 sieve) by weight.

The plasticity index of the fines shall not exceed 15 and the liquid limit shall not exceed
35. Clean gravel ranging from pea gravel to 6 inches with less than 5% fines and sand combined may alternatively be used as structural fill. All fill soils shall be free of topsoil, highly organic material, frozen and other deleterious materials.

5.9.2.4BACKFILL AND FILL MATERIALS: Satisfactory soil materials free of clay, rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetable and other deleterious matter.

5.9.2.5COMPACTION TESTING: Owner may employ at Owners Expense, testing laboratory to perform soil testing and inspection service for quality control testing during earthwork operations.

5.9.2.6SITE CONDITIONS: Data on indicated subsurface conditioned at the end of this section are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn therefrom by Contractor. Data is made available for convenience of Contractor. Contractor may make additional test borings and other exploratory operations at no cost to Owner.

5.9.3CONSTRUCTION: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to the satisfaction of utility owner.

Do not interrupt existing utilities serving facilities occupied and used by Owner or others during occupied hours, except when permitted in writing by Engineer and then only after acceptable temporary utility services have been provided.

Provide minimum of 48-hour notice to Engineer, and receive written notice to proceed before interrupting any utility.

Demolish and completely remove from site any and all existing underground utilities identified for removal. Coordinate with utility companies for shut-off of services if lines are active.

5.9.3.1EXPLOSIVES: The use of explosives is not permitted without written approval of ENGINEER and OWNER and any and all Authorities Having Jurisdiction over the use of explosives.

Procedures and liabilities as outlined in Section 5.1.3.3, Solid Rock Excavation And Blasting, shall be followed if the use of explosives is necessary.

5.9.3.2PROTECTIONS OF PERSONS AND PROPERTY: Barricade open excavations occurring as part of this work. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

5.9.3.3EXCAVATION CLASSIFICATIONS: The following classifications of excavation will be made when rock excavation is encountered in work:

Earth Excavation - Includes excavation of pavements and other obstructions visible on ground surface; underground structures, utilities and other items indicated to be demolished and removed; together with earth and other materials encountered that are not classified as rock or unauthorized excavation.

Rock Excavation in Trenches and Pits - Includes removal and disposal of materials and obstructions encountered which cannot be excavated with a 1.0 cubic yard (heaped) capacity, 42 inch wide bucket on track-mounted power excavator equivalent to Caterpillar Model 215, rated at not less than 90 HP flywheel power and 30,000 lb. drawbar pull. Trenches in excess of 10' - 0" in width and pits in excess of 30' - 0" in length or width are classified as open excavation.

Rock Excavation in Open Excavations - Includes removal and disposal of materials and obstructions encountered, which cannot be dislodged and excavated with modern track- mounted heavy-duty excavation equipment without drilling, blasting or ripping.

Typical of materials classified as rock are boulders 1/2 cu. yd. or more in volume, solid rock, rock in ledges, and rock-hard cementitious aggregate deposits.

Intermittent drilling, blasting or ripping performed to increase production and not necessary to permit excavation of material encountered will be classified as earth excavation.

Do not perform rock excavation work until material to be excavated has been cross- sectioned and classified by the Engineer. Such excavation will be paid on basis of contract conditions relative to changes in work.

Rock Payment Lines are limited to the following:

Two feet outside of concrete work for which forms are required, except footings. One foot outside perimeter of footings. In pipe trenches, 6 inches below invert elevation of pipe and 2 feet wider than inside diameter of pipe, but not less than 3 feet minimum trench width. Neat outside dimensions of concrete work where no forms are required. Under slabs on grade, 6 inches below bottom of concrete slab.

Unauthorized Excavation - Consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be at Contractor's expense.

Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Engineer.

Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Engineer.

Additional Excavation: When excavation has reached required subgrade elevations, notify Engineer who will make an inspection of conditions.

If unsuitable bearing materials are encountered at required subgrade elevation, carry excavations deeper and replace excavated material as directed by Engineer. Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.

5.9.3.4STABILITY OF EXCAVATIONS: Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.

Maintain sides and slopes of excavations in safe condition until completion of backfilling.

5.9.3.5SHORING AND BRACING: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition.

Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.

Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

5.9.3.6DEWATERING: Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area.

Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

5.9.3.7MATERIAL STORAGE Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage. Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain. Dispose of excess soil material and waste materials as herein specified.

5.9.3.8COLD WEATHER PROTECTION: Protect excavation bottoms against freezing when atmospheric temperature is less than 35°F. (I°C).

5.9.3.9COMPACTION: Control soil compaction during construction providing minimum percentage of density specified for each area classification indicated below.

Structural Fill and Sub-Ballast: Compact top 8 inches of subgrade and each layer of structural fill material or sub-ballast at 95% maximum modified proctor density ASTM D 1557). Maximum compacted thickness of any one lift shall not exceed 6-inches.

Sub-Grade:Compact top 6 inches of subgrade and each layer of backfill or fill material at 90% maximum modified proctor density (ASTM D 1557).

Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material. Apply water in manner to prevent free water appearing on surface during or subsequent to compaction operations.

Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by dicing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

5.9.3.10BACKFILL AND FILL: Place acceptable soil material in layers not exceeding 8 inches (uncompacted depth) and compact each layer prior to placement of next layer to required subgrade elevations, for each area classification listed below.

Sub-ballast, use structural fill material, or satisfactory excavated or borrow material, or combination of both.

Under Ballast, use sub-ballast material.

Backfill excavations as promptly as work permits, but not until completion of the following:

Acceptances of construction below finish grade including, where applicable, damp proofing, waterproofing, and perimeter insulation.

Inspection, testing, approval, and recording locations of underground utilities.

5.9.3.11GROUND SURFACE PREPARATION: Remove vegetation, debris, unsatisfactory materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break-up sloped surfaces steeper than I vertical to 4 horizontal so that fill material will bond with existing surface.

When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.

5.9.3.12PLACEMENT AND COMPACTION: Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand- operated tampers.

Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

Place backfill and fill materials evenly adjacent to structures, piping or conduit to required elevations. Take care to prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping or conduit to approximately same elevation in each lift.

5.9.3.13GRADING: Uniformly grade areas within limits of grading under this section including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between point s where elevations are indicated, or between such points and existing grades.

Finish surfaces free from irregular surface changes, and as follows:

Ballast and Sub-Ballast: Shape surface of areas under Ballast and Sub-Ballast to line, grade and cross-section, with finish surface not more than 2 inches above or below required subgrade elevation.

Compaction:After grading, compact subgrade surfaces to the depth and indicated percentage of maximum dry or relative density for each area classification.

5.9.3.14MAINTENANCE:

Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

Reconditioning Compacted Areas: Where subsequent construction operations or adverse weather disturbs completed compacted areas, scarify surface, re-shape, and compact to required density prior to further construction.

Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

5.9.3.15DISPOSAL OF EXCESS AND WASTE MATERIALS

Removal to Designated Areas on Owner's Property: Transport acceptable excess excavated material to designated soil storage areas on Owner's property. Stockpile soil or spread as directed by Engineer.

Removal from Owner's Property: Remove waste materials, including unacceptable excavated material, trash and debris, and dispose of it off Owner's property, in a legal manner.

End of Section

Can the notes be consolidated to only those pertaining to this site.

WEBER COUNTY ENGINEERING DEPARTMENT
FINAL SET APPROVED CONSTUCTION DRAWINGS

SITE BOUNDARY & TOPOGRAPHIC SURVEY
Boundary Consultants
Professional Land Surveyors
5554 West 2425 North, Hooper, UT 84315 (801) 729-1569
David E. Hawkes, PLS Utah No. 356548

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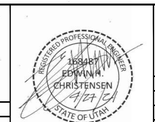

Terrex Engineering & Construction, LLC
Land Development - Public Works - Water & Wastewater Utilities
P.O. Box 13059 Ogden, UT 84412 (801) 458-9647

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Stagecoach Estates
40.0 Acre - 56 Lot Residential Development

DEVELOPER: Lync Construction
GENERAL ADDRESS: 1800 South 3800 West, West Weber, Utah
LAND SURVEYOR: Boundary Consultants / David E. Hawkes, PLS
Technical Review & Construction Approval: Weber County Engineering

TAYLOR WEST WEBER WATER DISTRICT
CONSTRUCTION SPECIFICATIONS

SHEET GEN-08

NORTH

60 30 0 60 120

SCALE

LOT 1
LOT 2
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LOT 56

3800 WEST STREET

1700-1750 SOUTH STREET

1800 SOUTH STREET

DETENTION BASIN

EXTANT GARAGE

EXTANT HOUSE

STORM DRAIN PLAN & PROFILE SHEET PP-02
SANITARY SEWER PLAN & PROFILE SHEET PP-11

STORM DRAIN PLAN & PROFILE SHEET PP-03
SANITARY SEWER PLAN & PROFILE SHEET PP-12

STORM DRAIN PLAN & PROFILE SHEET PP-04
SANITARY SEWER PLAN & PROFILE SHEET PP-13

STORM DRAIN PLAN & PROFILE SHEET PP-05
SANITARY SEWER PLAN & PROFILE SHEET PP-14

STORM DRAIN PLAN & PROFILE SHEET PP-06
SANITARY SEWER PLAN & PROFILE SHEET PP-15

STORM DRAIN PLAN & PROFILE SHEET PP-07
SANITARY SEWER PLAN & PROFILE SHEET PP-16

STORM DRAIN PLAN & PROFILE SHEET PP-10

STORM DRAIN PLAN & PROFILE SHEET PP-08
SANITARY SEWER PLAN & PROFILE SHEET PP-17

STORM DRAIN PLAN & PROFILE SHEET PP-09
SANITARY SEWER PLAN & PROFILE SHEET PP-18

We will need a traffic study to address the amount of accesses onto 1800 South.
There needs to be an elevation on the plat for each of the homes to protect them from the high ground water. Or some way of regulating it.

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188487
EDWIN H. CHRISTENSEN
REGISTERED PROFESSIONAL ENGINEER
STATE OF UTAH

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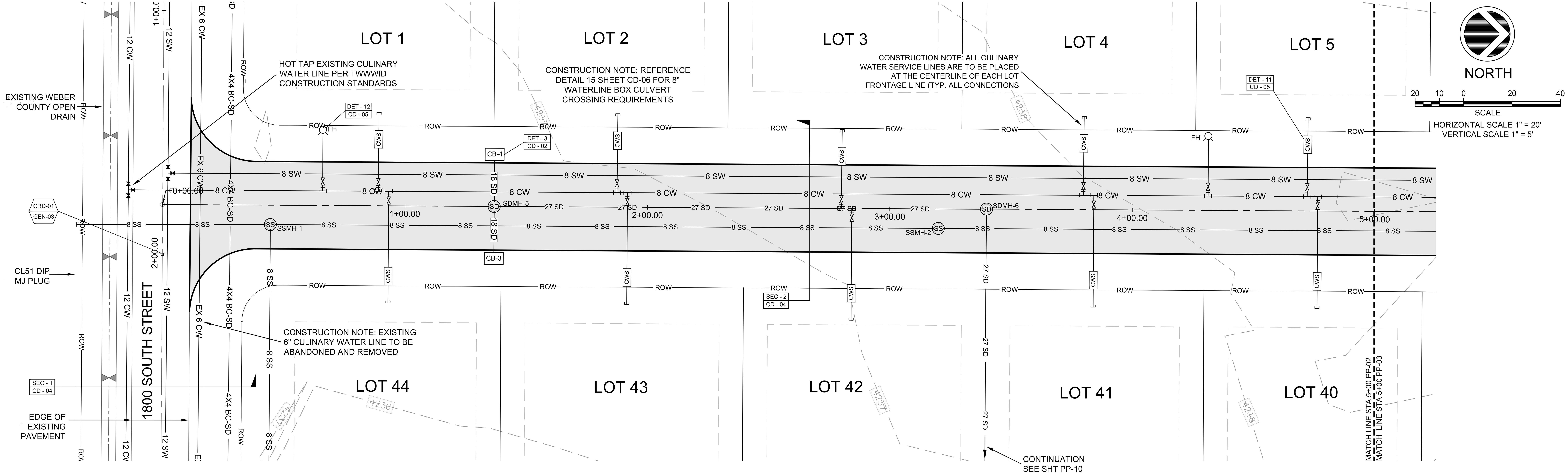
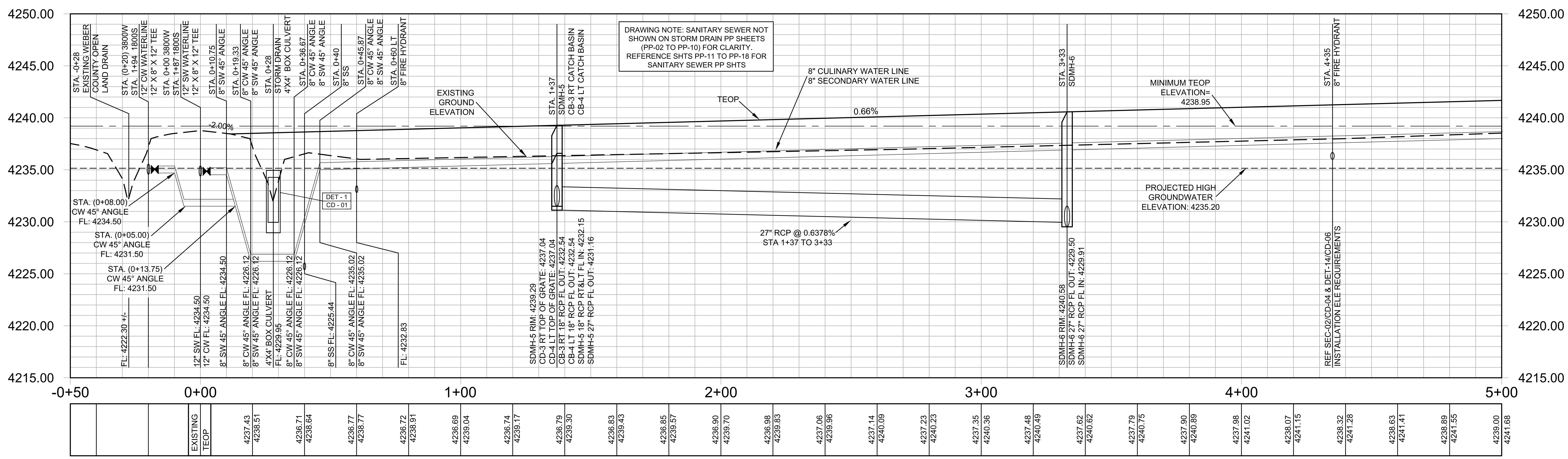
PLAN & PROFILE SHEET INDEX

SHEET PP-01



3800 WEST STREET



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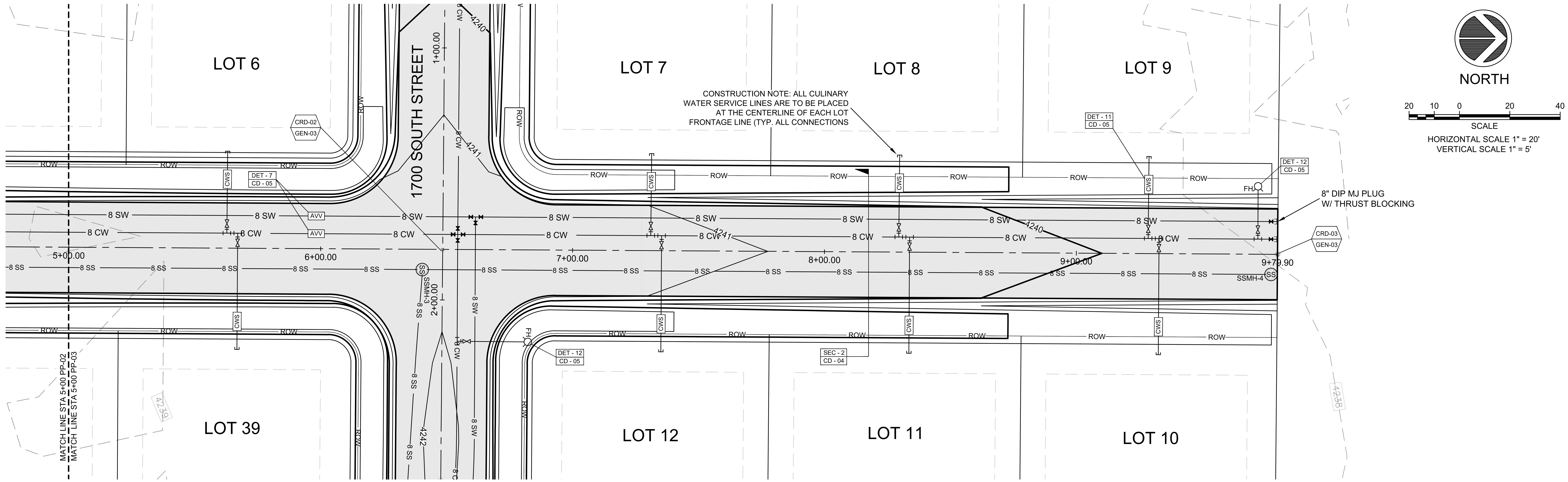
STREET/STORM DRAIN PLAN & PROFILE

SHEET PP-02



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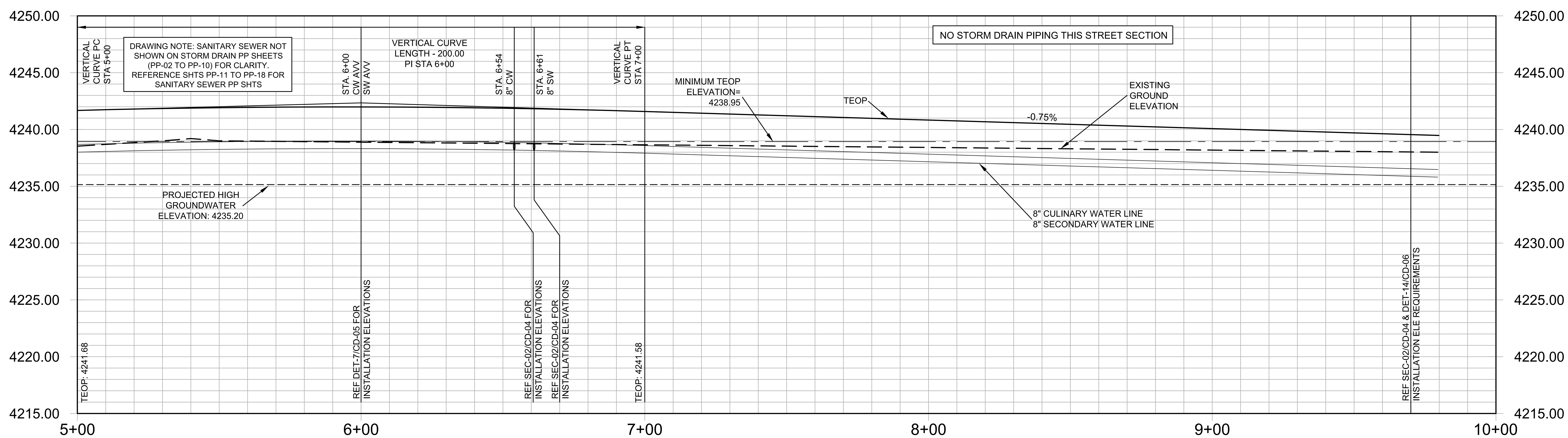

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STREET/STORM DRAIN
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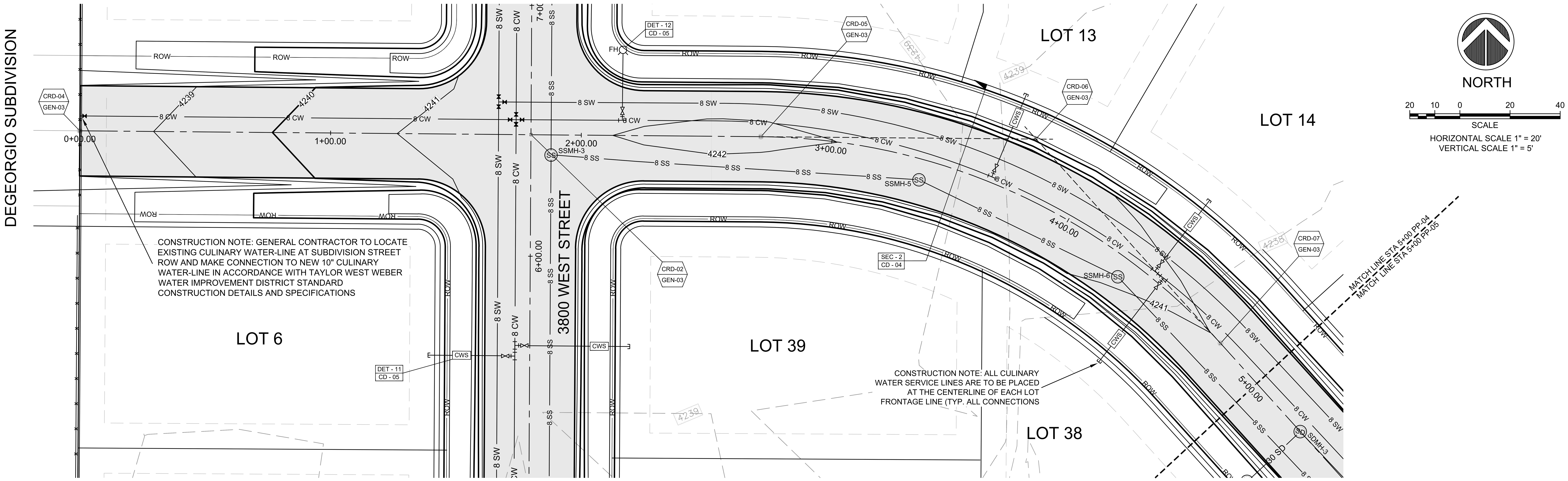
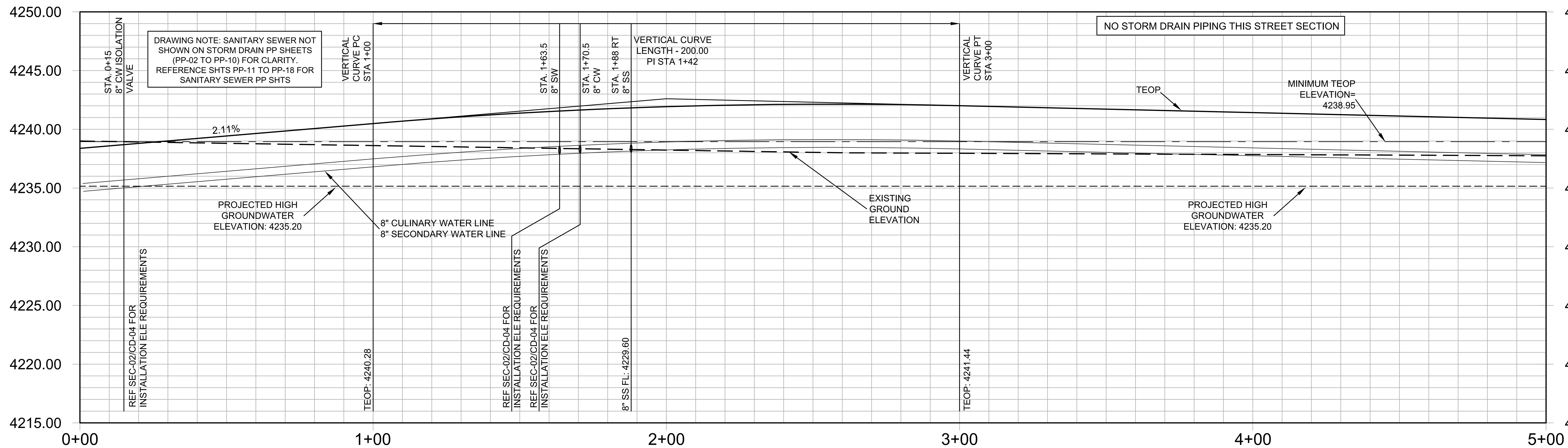
SHEET PP-03



1700-1750 SOUTH STREET



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	4238.56	4239.65
	4238.57	4240.07
1+00	4238.58	4240.49
	4238.61	4240.88
	4238.63	4241.23
	4238.66	4241.51
	4238.69	4241.75
2+00	4238.72	4241.93
	4238.75	4242.05
	4238.81	4242.12
	4238.88	4242.14
	4238.93	4242.10
3+00	4238.95	4242.01
	4238.97	4241.90
	4238.99	4241.78
	4239.00	4241.66
	4238.90	4241.54
4+00	4238.65	4241.43
	4238.40	4241.31
	4238.16	4241.19
	4237.98	4241.07
	4237.84	4240.96
5+00	4237.71	4240.84

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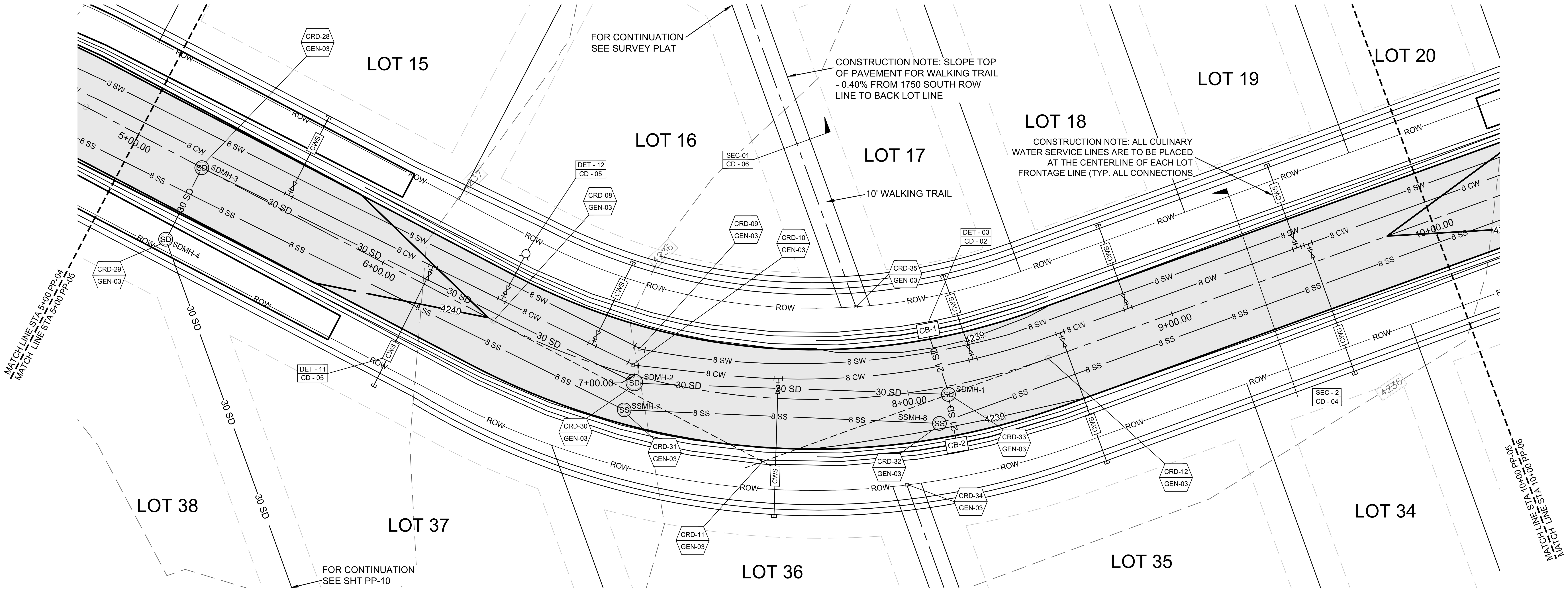
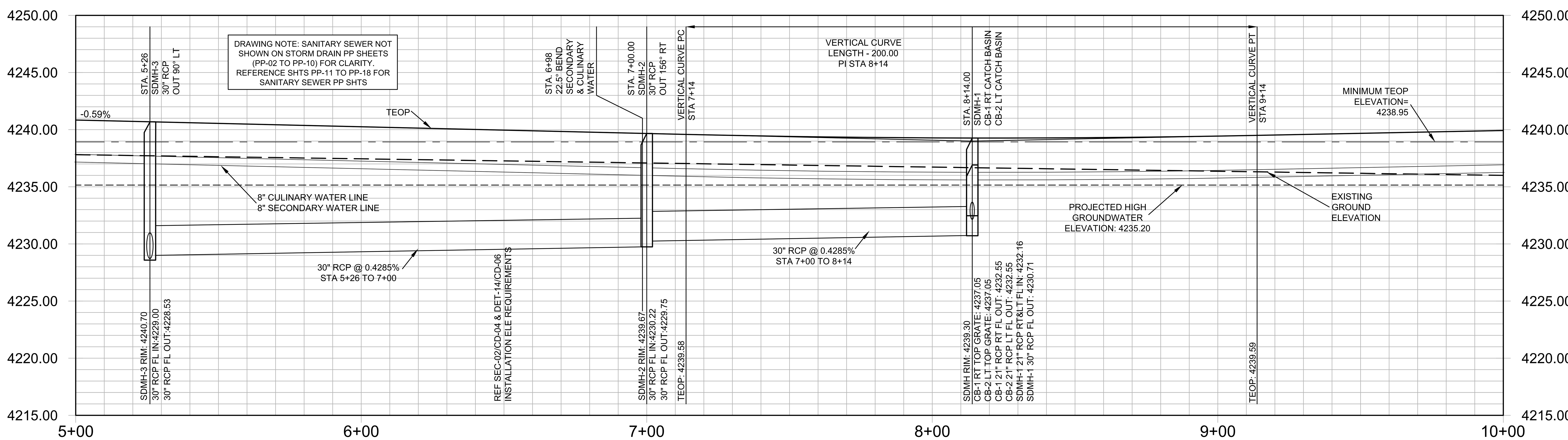
STREET/STORM DRAIN PLAN & PROFILE

SHEET PP-04



1700-1750 SOUTH STREET



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TEOP	4240.84	4240.72	4240.60	4240.49	4240.37	4240.25	4240.13	4240.02	4239.90	4239.78	4239.67	4239.55	4239.45	4239.37	4239.31	4239.28	4239.27	4239.28	4239.31	4239.36	4239.43	4239.53	4239.63	4239.73	4239.83	4239.93

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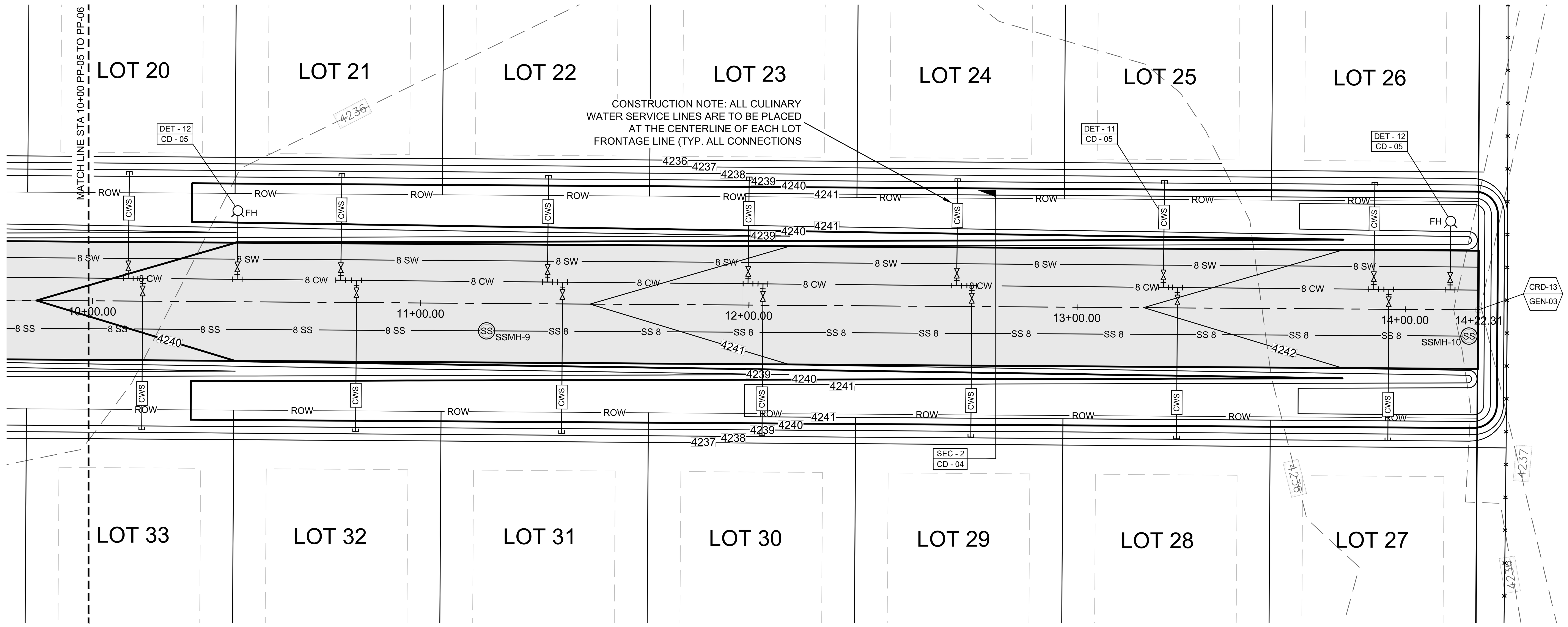
STREET/STORM DRAIN
PLAN & PROFILE

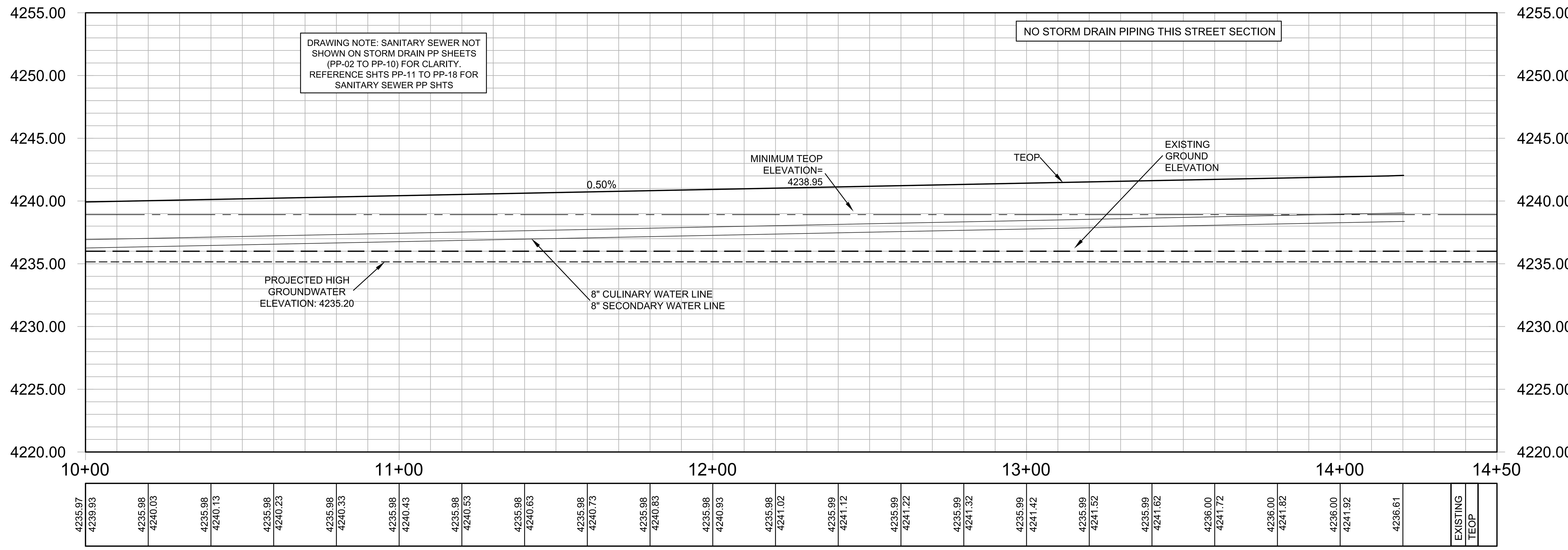
SHEET PP-05



NORTH

HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

1700-1750 SOUTH STREET



WEBER COUNTY ENGINEERING DEPARTMENT
FINAL SET APPROVED CONSTUCTION DRAWINGS

SITE BOUNDARY & TOPOGRAPHIC SURVEY
Boundary Consultants
Professional Land Surveyors
5554 West 2425 North, Hooper, UT 84315 (801) 729-1569
David E. Hawkes, PLS Utah No. 356548

DATE	SURVEY / SUBMITTAL
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3/4/2021	Weber County Surveyor's Record Plat

REGISTERED PROFESSIONAL ENGINEER 168487 EDWIN H. CHRISTENSEN STATE OF UTAH

Terrex Engineering & Construction, LLC
Land Development - Public Works - Water & Wastewater Utilities
P.O. Box 13059 Ogden, UT 84412 (801) 458-9647

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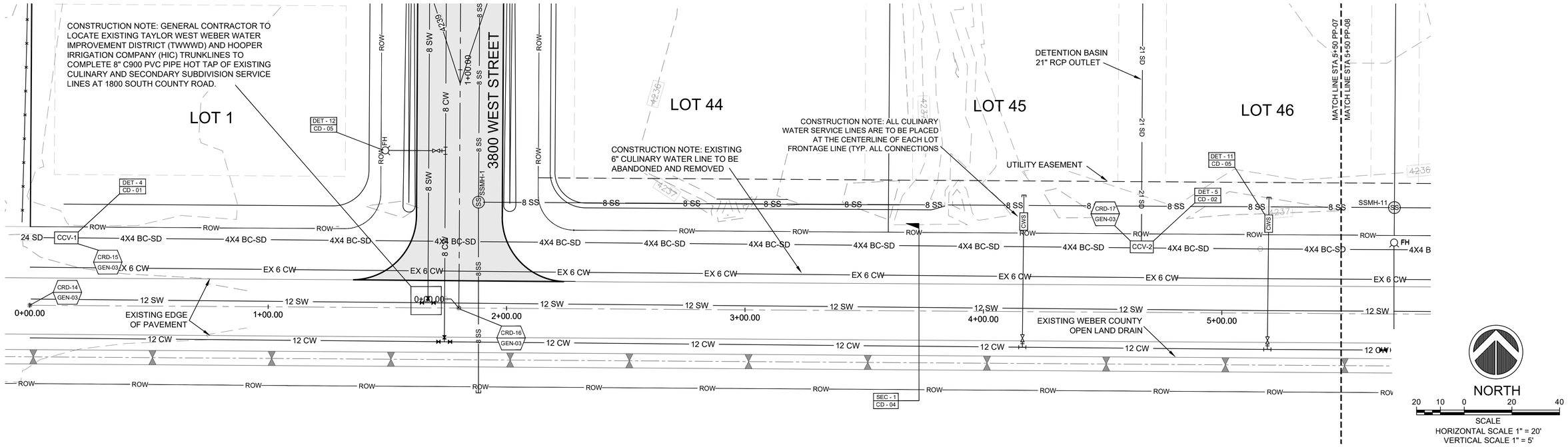
Stagecoach Estates
40.0 Acre - 56 Lot Residential Development

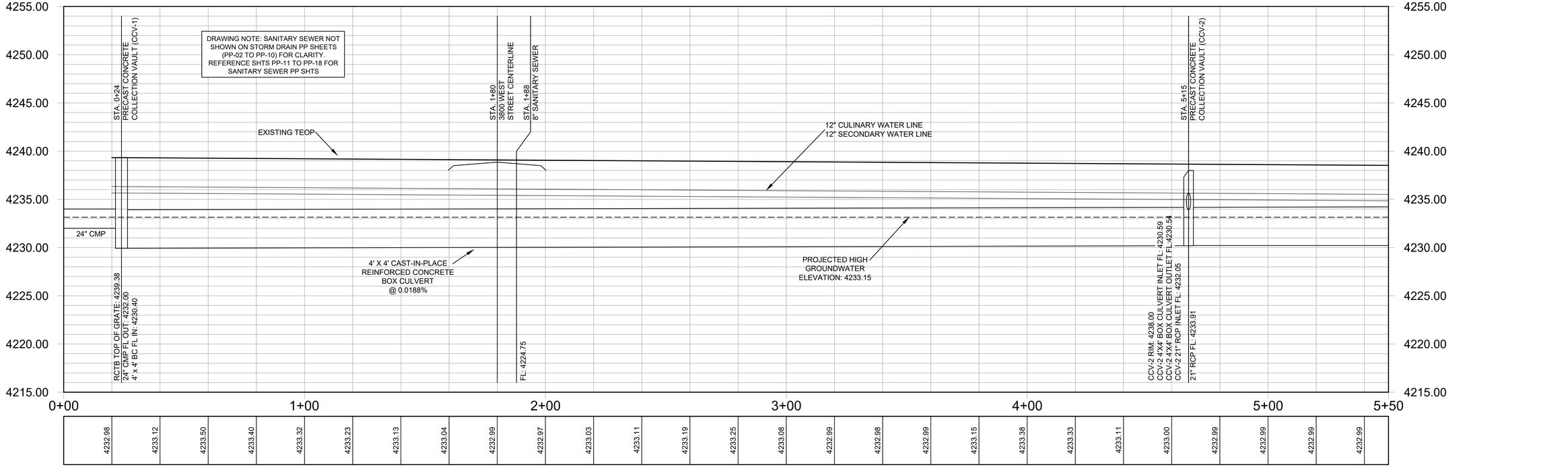
DEVELOPER: Lync Construction
GENERAL ADDRESS: 1800 South 3800 West, West Weber, Utah
LAND SURVEYOR: Boundary Consultants / David E. Hawkes, PLS
Technical Review & Construction Approval: Weber County Engineering

STREET/STORM DRAIN
PLAN & PROFILE

SHEET PP-06



1800 SOUTH STREET



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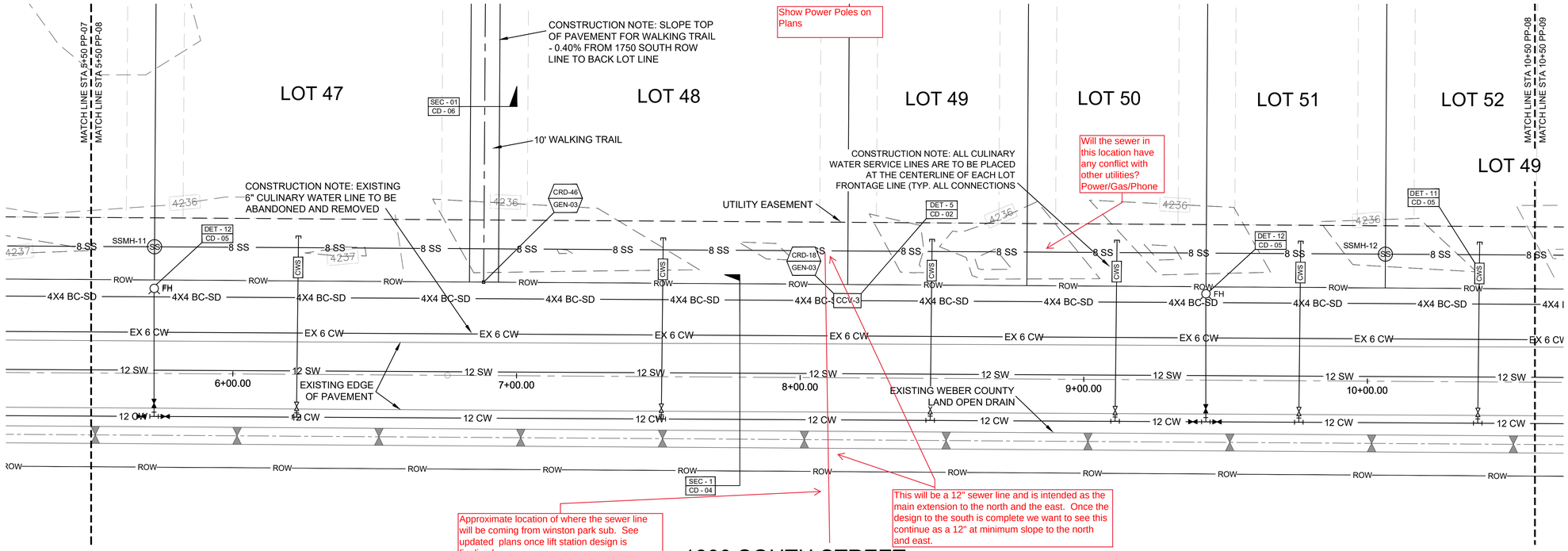
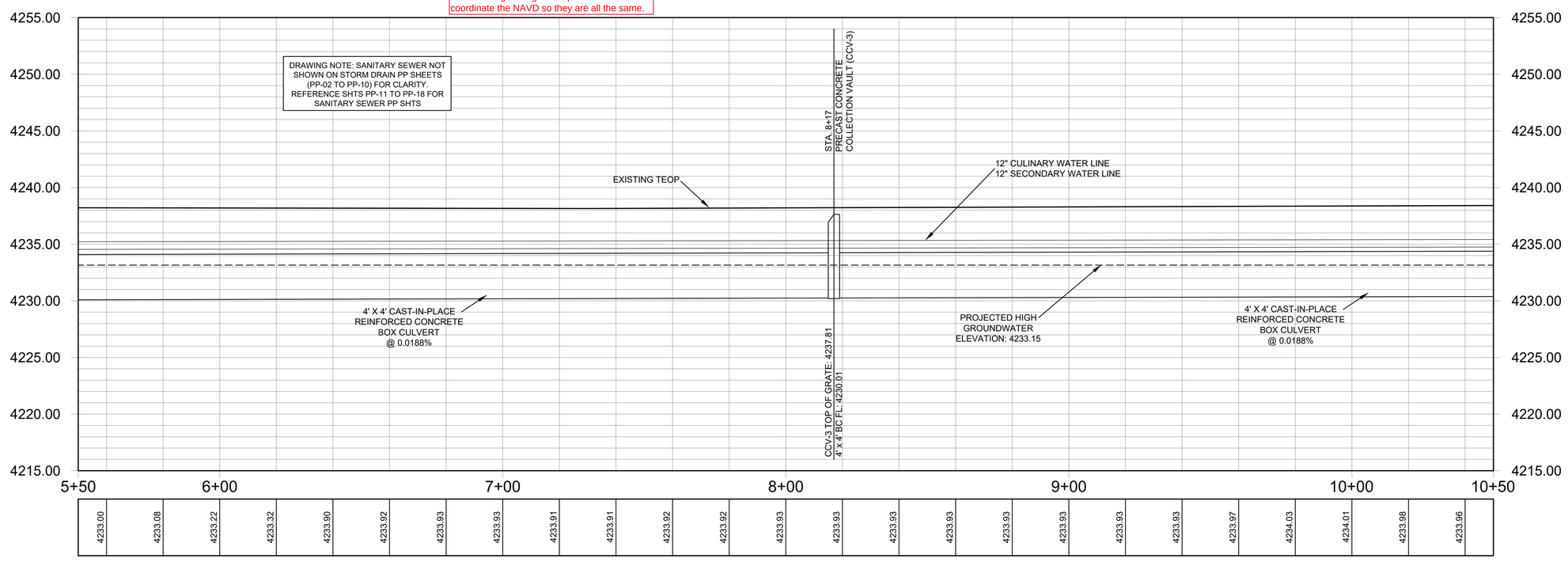
STREET/STORM DRAIN PLAN & PROFILE

SHEET PP-07





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183487
EDWIN H. CHRISTENSEN
STATE OF UTAH

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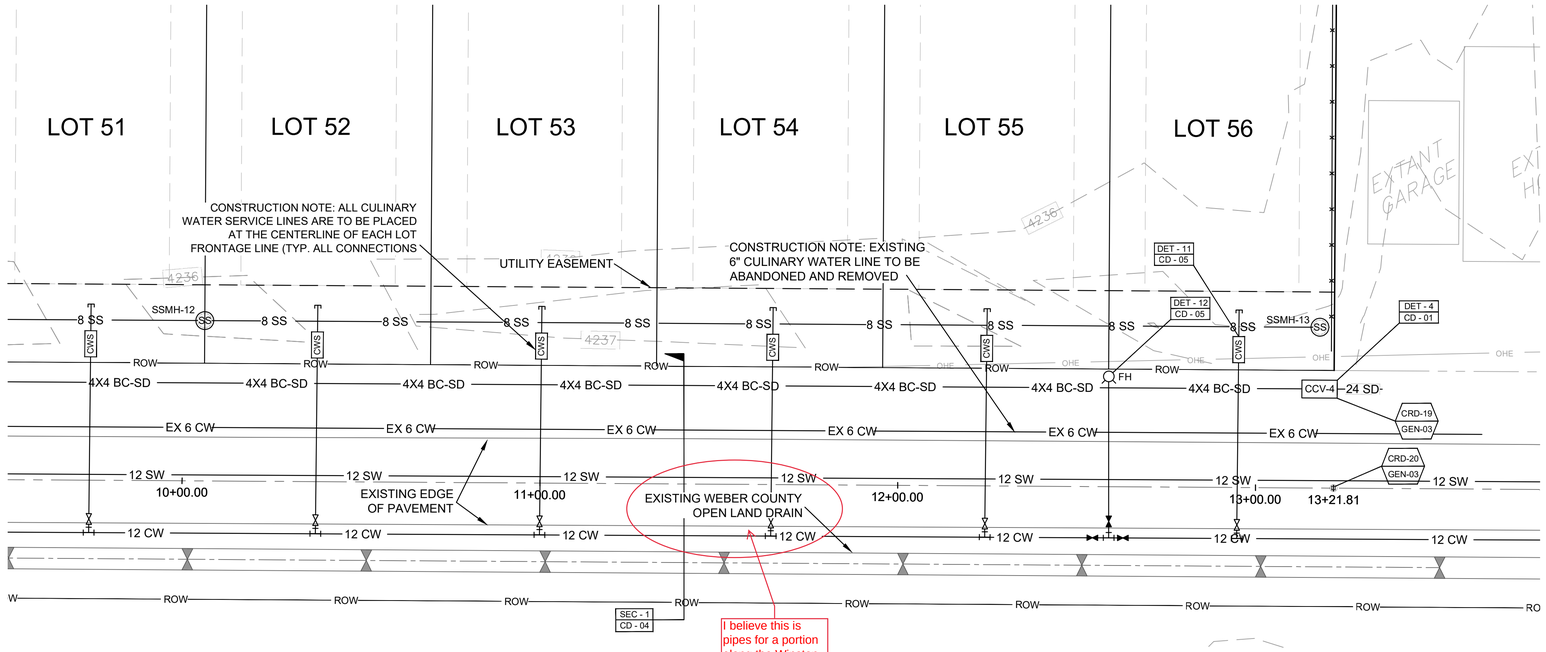
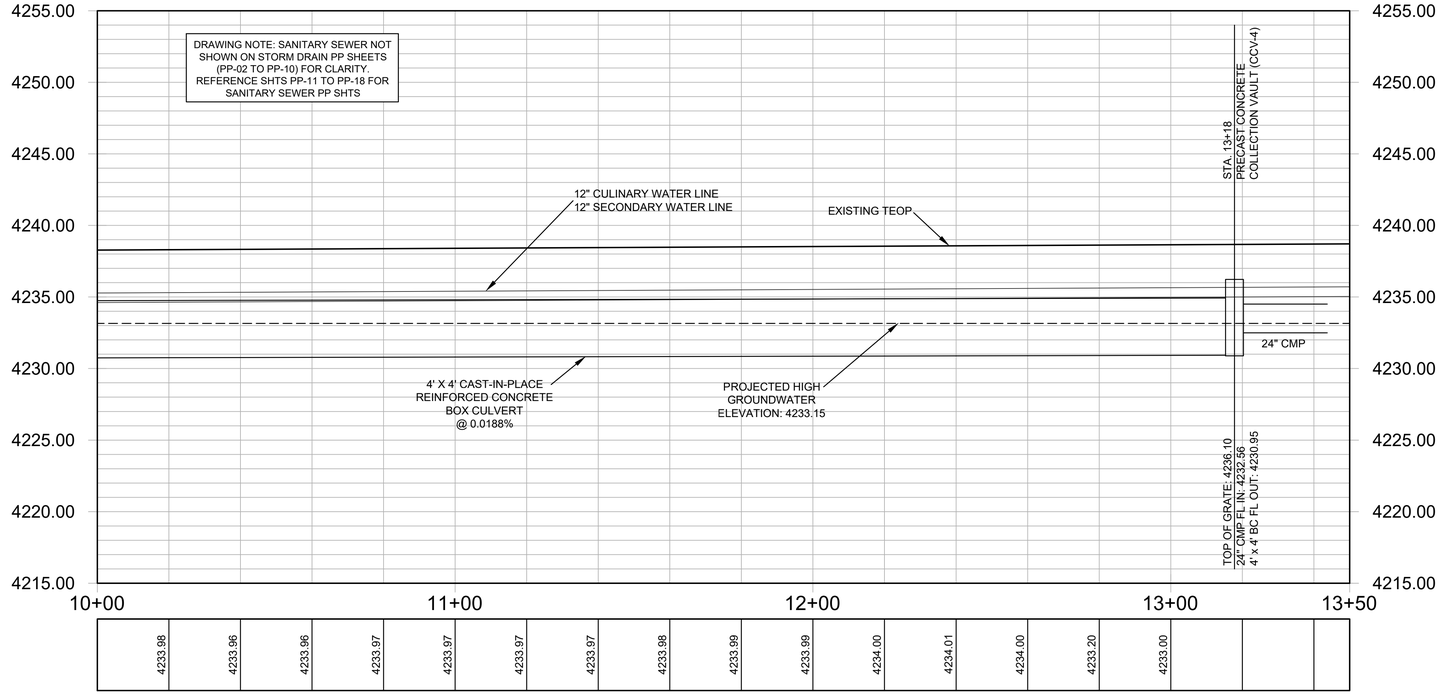
STREET/STORM DRAIN PLAN & PROFILE

SHEET PP-08



1800 SOUTH STREET



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STREET/STORM DRAIN PLAN & PROFILE

SHEET PP-09

We do have some reservations about a pump station for the storm water. Who will be over the pump station and take liability is someone floods or standing water in lots? This needs to be disclosed to the property owners on the plat and a recorded document so they will know.
Is there a safeguard to prevent homes from flooding if the pumps go out?

HOA to be over the Storm Drain Pump Station

LOT 37

LOT 46

LOT 38

LOT 45

LOT 40

LOT 41

LOT 42

LOT 43

LOT 44

RESIDENTIAL LOT LINE

10.0' PUBLIC UTILITY EASEMENT (TYP. ALL LOT LINES)

1+57.00 SDMH-8

3+41.00 SDMH-9

SDMH-3

SDMH-4

SDMH-7

0+00.00

DET - 02 , S-1 , S-2
CD - 02

DET - 01
CD - 02

DET - 01
CD - 02

CRD-21
GEN-03

CRD-22
GEN-03

CRD-23
GEN-03

STORM DRAIN PUMP STATION

DETENTION BASIN INLET STRUCTURE

DETENTION BASIN OUTLET STRUCTURE

DETENTION BASIN

4240

4235

1.5:1.0 CUT/FILL SLOPE

CONSTRUCTION NOTE: DETENTION BASIN TO REMAIN UNLINED AND NOT INCLUDED IN THE SCOPE OF THE SUBDIVISION'S CONSTRUCTION. ANY FINAL DECISION REGARDING THE TYPE OF LINING, INCLUDING ITS OPERATION AND MAINTENANCE, SHALL BE MADE BY THE SUBDIVISION HOME-OWNER'S ASSOCIATION

There should be a note on the plat that references that the HOA is responsible for the O&M of the pond and associated pumps.

PLAN & PROFILE FOR 27 SD STORM DRAIN NOT INCLUDED IN CONSTRUCTION DRAWINGS
SDMH-6 27" RCP FL OUT: 4229.50 (REFERENCE PP-02)
SDMH-7 27" RCP FL IN: 4227.81
315 FT 27" RCP @ 0.44121%

CONTINUATION REFERENCE 3800 WEST STREET PP-02

30 SD | 8 SS | 27 SD | 21 SD | 4X4 BC-SD | EX 6 CW | 12 SW | ROW | CCV-2

NORTH

20 10 0 20 40

SCALE
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

DRAWING NOTE: SANITARY SEWER NOT SHOWN ON STORM DRAIN PP SHEETS (PP-02 TO PP-10) FOR CLARITY. REFERENCE SHTS PP-11 TO PP-18 FOR SANITARY SEWER PP SHTS

STA. 0+00 SDMH-3 STA. 5+26 1750 SOUTH PP-05

STA. 0+29 SDMH-4 30" RCP OUT 90° LT

STA. 1+57 SDMH-8

STA. 1+77 SDMH-7

STA. 1+87 STORM DRAIN PUMP STATION WET WELL

STA. 2+22 DETENTION BASIN INLET STRUCTURE

STA. 3+32 DBIS DETENTION BASIN OUTLET STRUCTURE

STA. 3+41 DBOS SDMH-9

STA. 5+02.37 STA. 5+15 1800 SOUTH PRECAST CONCRETE STORM DRAIN COLLECTION VAULT

EXISTING GROUND ELEVATION

PROJECTED HIGH GROUNDWATER ELEVATION: 4233.15

DETENTION BASIN FLOOR ELEVATION: 4235.52

30" RCP @ 0.4285% STA 0+00 TO 0+29

30" RCP @ 0.4285% STA 0+29 TO 1+57

30" RCP @ 0.4285% STA 1+57 TO 1+77

42" RCP @ 0.2205% STA 1+77 TO 1+87

21" RCP @ 0.3505% STA 3+41 TO 5+28

STORM DRAIN PUMP STATION PRECAST CONCRETE WET-WELL

SDMH-3 RIM: 4240.24
30" RCP FL IN: 4229.00
30" RCP FL OUT: 4228.53

SDMH-4 RIM: 4239.85
30" RCP FL IN: 4228.41
30" RCP FL OUT: 4227.94

SDMH-8 RIM: 4240.00
30" RCP FL IN: 4227.39
30" RCP FL OUT RT: 4226.92

SDMH-7 RIM: 4240.00
30" RCP FL IN: 4226.83
27" RCP FL IN RT: 4227.81
42" RCP FL OUT: 4226.36

42" RCP FL IN: 4224.40

18" STEEL PIPE FL OUT: 4234.02
DBIS FLOOR: 4233.52

21" RCP FL OUT: 4235.52
DBOS FLOOR: 4235.02

21" RCP FL IN: 4235.25
21" RCP FL OUT LT: 4234.57

CCV-2 RIM: 4238.40
CCV-2 4'X4' BOX CULVERT INLET FL: 4230.16
CCV-2 4'X4' BOX CULVERT OUTLET FL: 4230.16
CCV-2 21" RCP INLET FL: 4233.91

4255.00 4250.00 4245.00 4240.00 4235.00 4230.00 4225.00 4220.00 4215.00

-0+50 0+00 1+00 2+00 3+00 4+00 5+00 5+50

4237.03 4237.04 4237.03 4237.02 4237.01 4237.00 4236.95 4236.77 4236.64 4236.73 4236.56 4236.39 4236.30 4236.25 4236.18 4236.06 4236.05 4236.03 4236.02 4236.00 4236.00 4235.99 4235.99 4236.00 4236.97 4233.28

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JASHART EDWIN CHRISTENSEN
STATE OF UTAH

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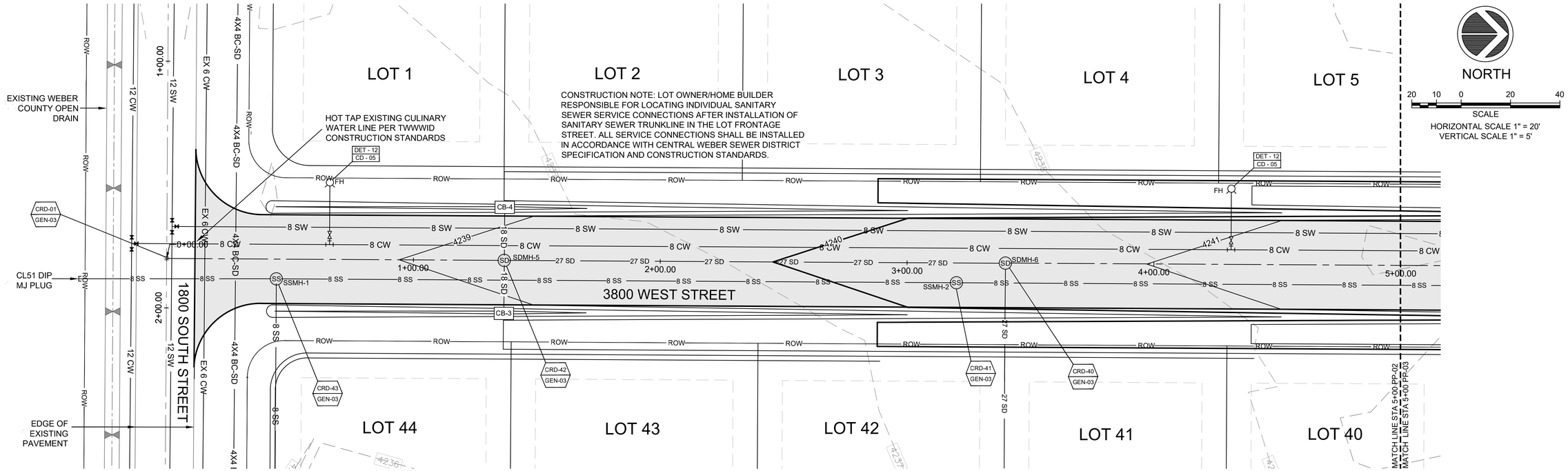
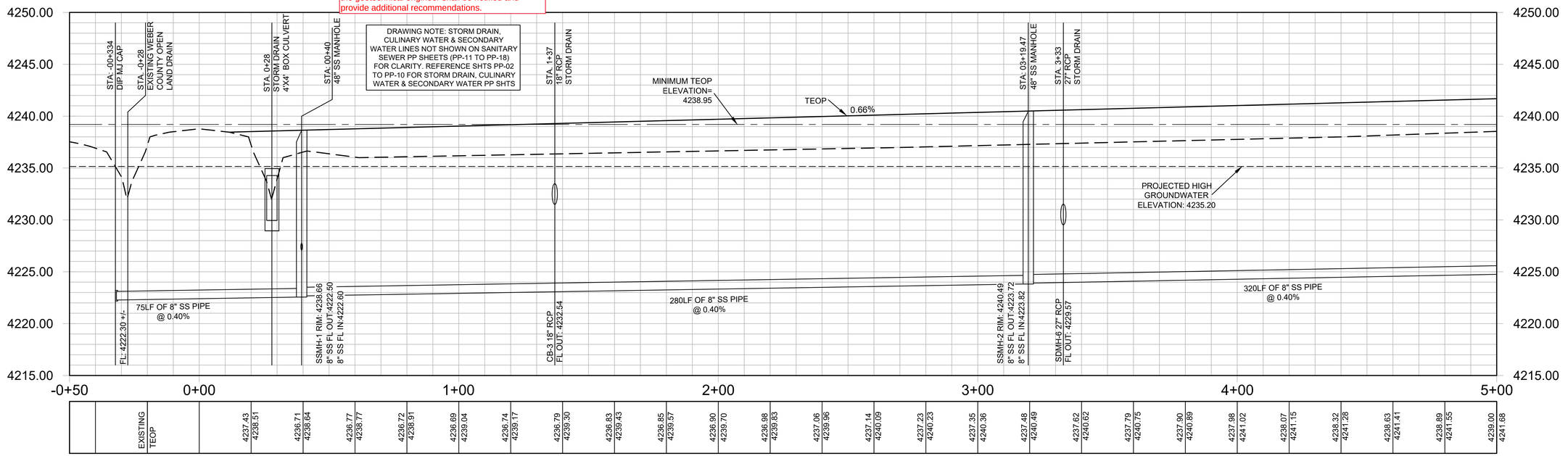
DETENTION BASIN & STORM DRAINAGE OUTFALL

SHEET PP-10



All fills over 3ft. will need to be observed by the geotechnical engineer and we will need a letter from them.
If ground water is 2ft. or less from the natural ground the geotechnical engineer shall be notified and provide additional recommendations.



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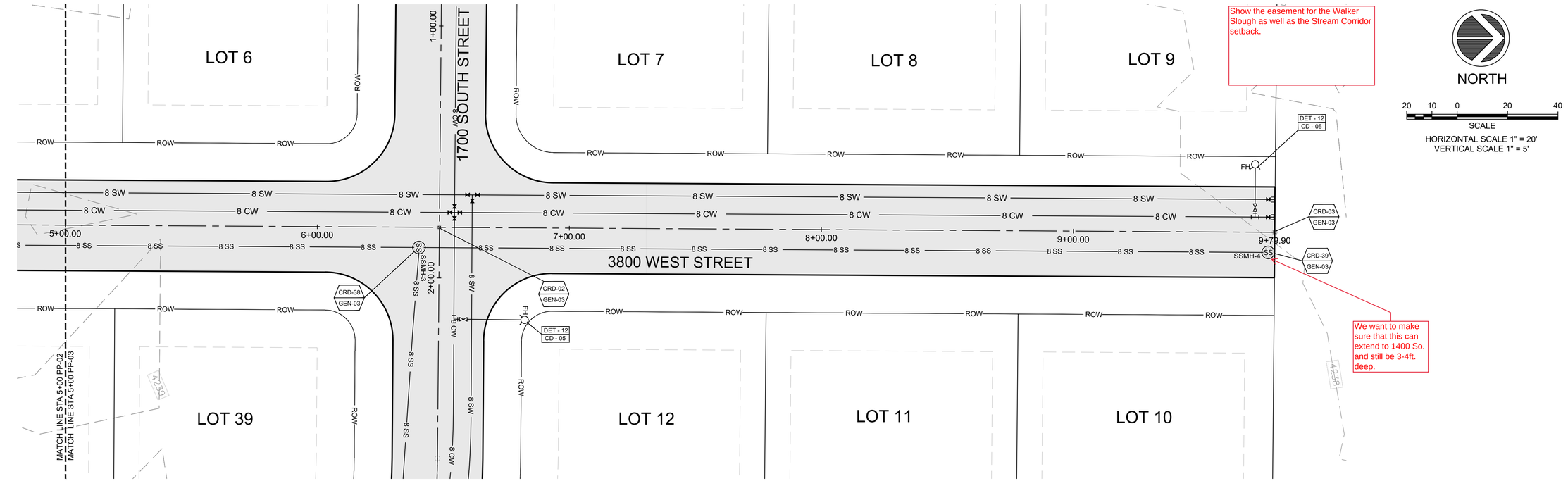
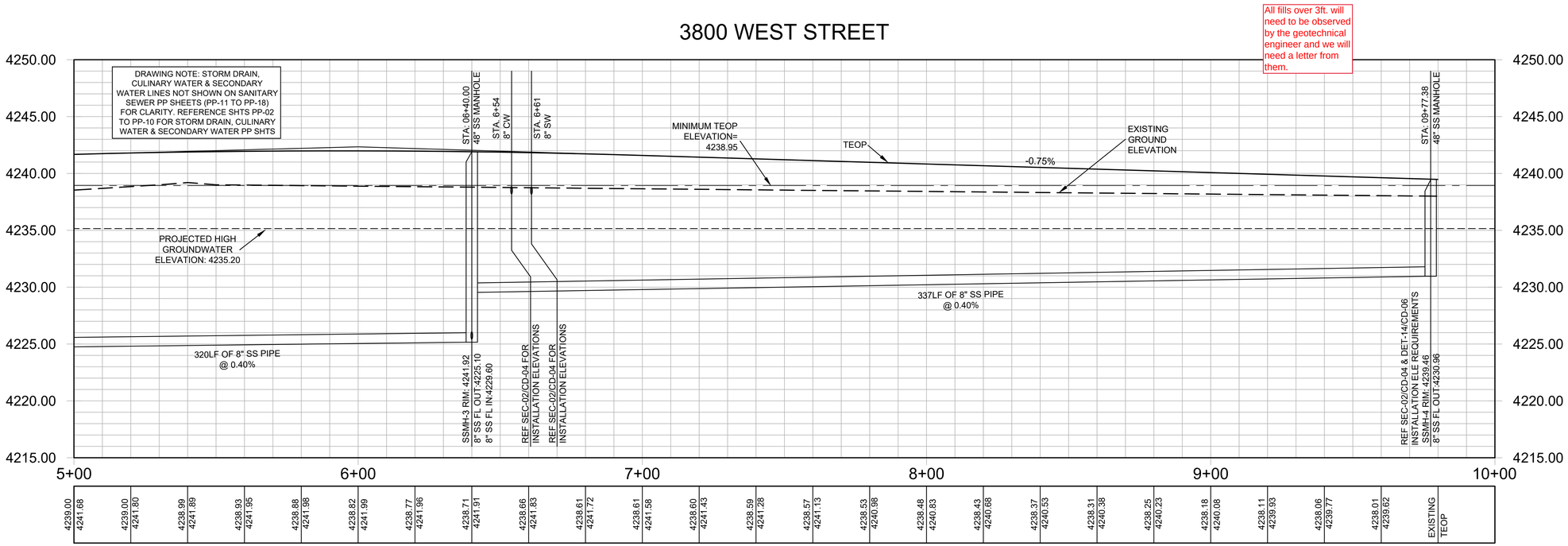
SANITARY SEWER PLAN & PROFILE

SHEET PP-11





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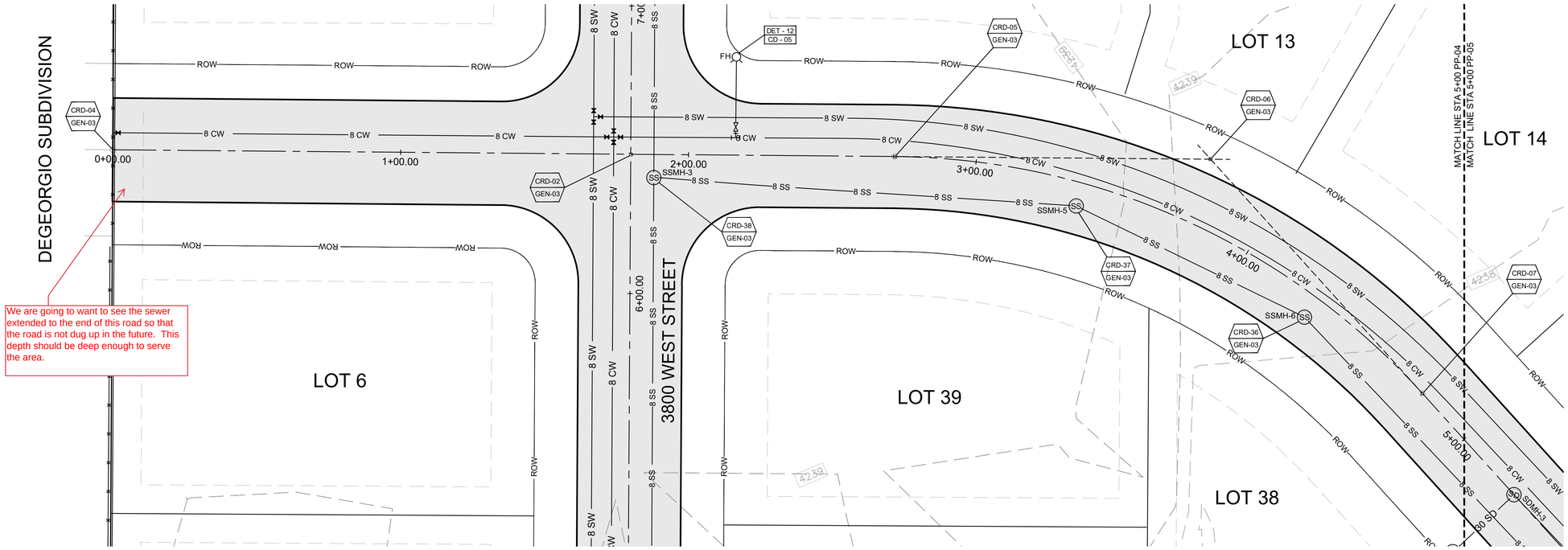
SANITARY SEWER PLAN & PROFILE

SHEET PP-12



NORTH

20 10 0 20 40

SCALE

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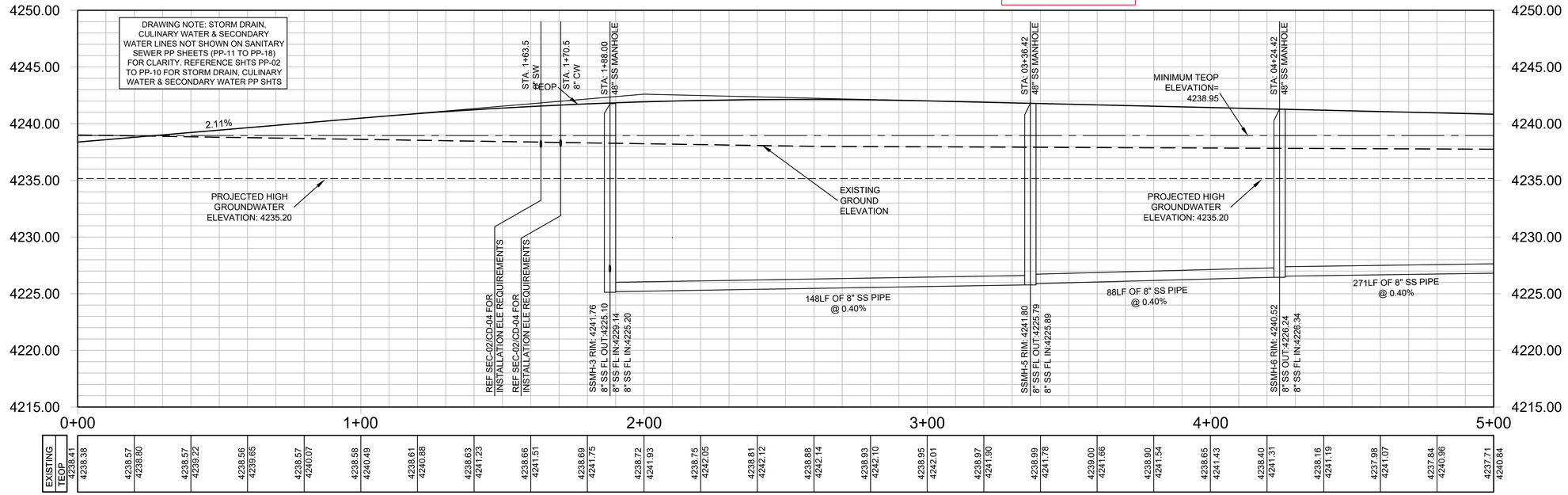
1700-1750 SOUTH STREET



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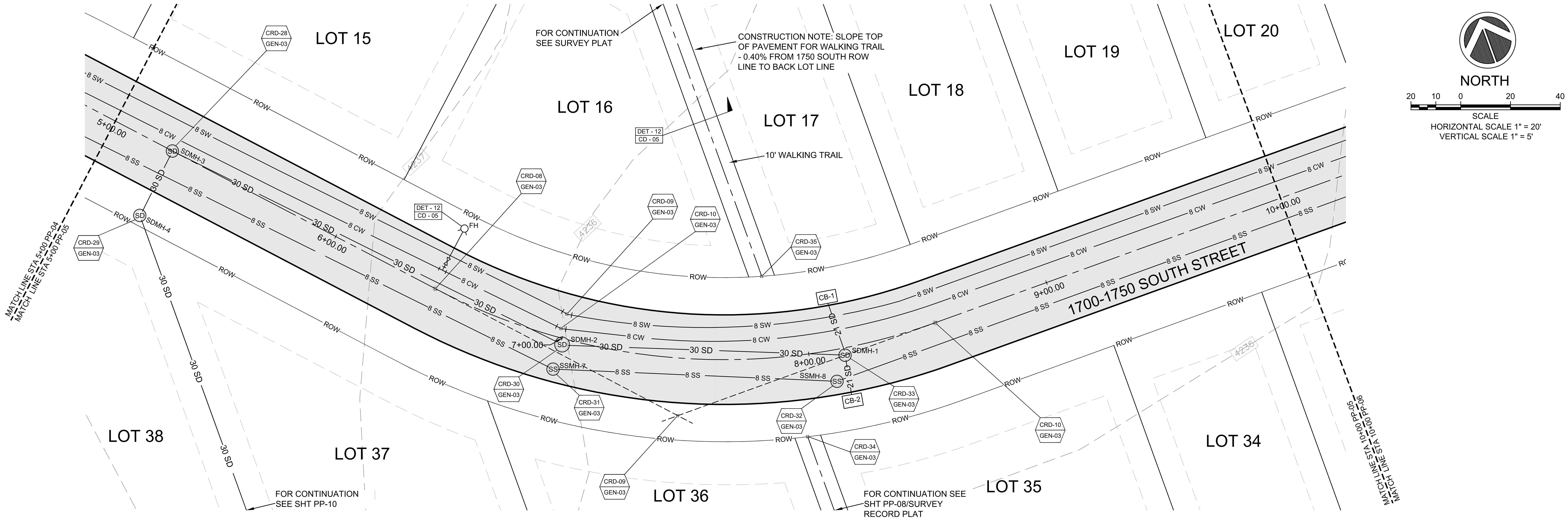
SANITARY SEWER
PLAN & PROFILE

SHEET PP-13



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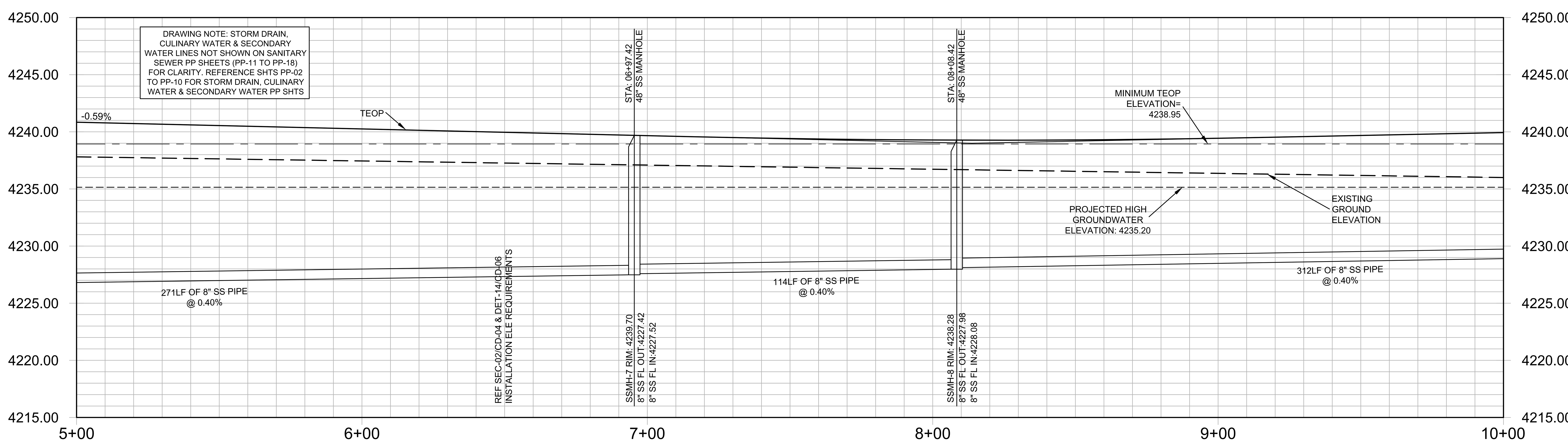

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TEOP	4240.84	4240.72	4240.60	4240.49	4240.37	4240.25	4240.13	4240.02	4239.90	4239.78	4239.67	4239.55	4239.45

EXISTING	4235.99	4235.98	4235.98	4235.98	4235.98	4235.98	4235.97	4235.97	4235.97	4235.97	4235.97	4235.97	4235.97
TEOP	4239.37	4239.31	4239.28	4239.27	4239.28	4239.31	4239.36	4239.43	4239.53	4239.63	4239.73	4239.83	4239.93

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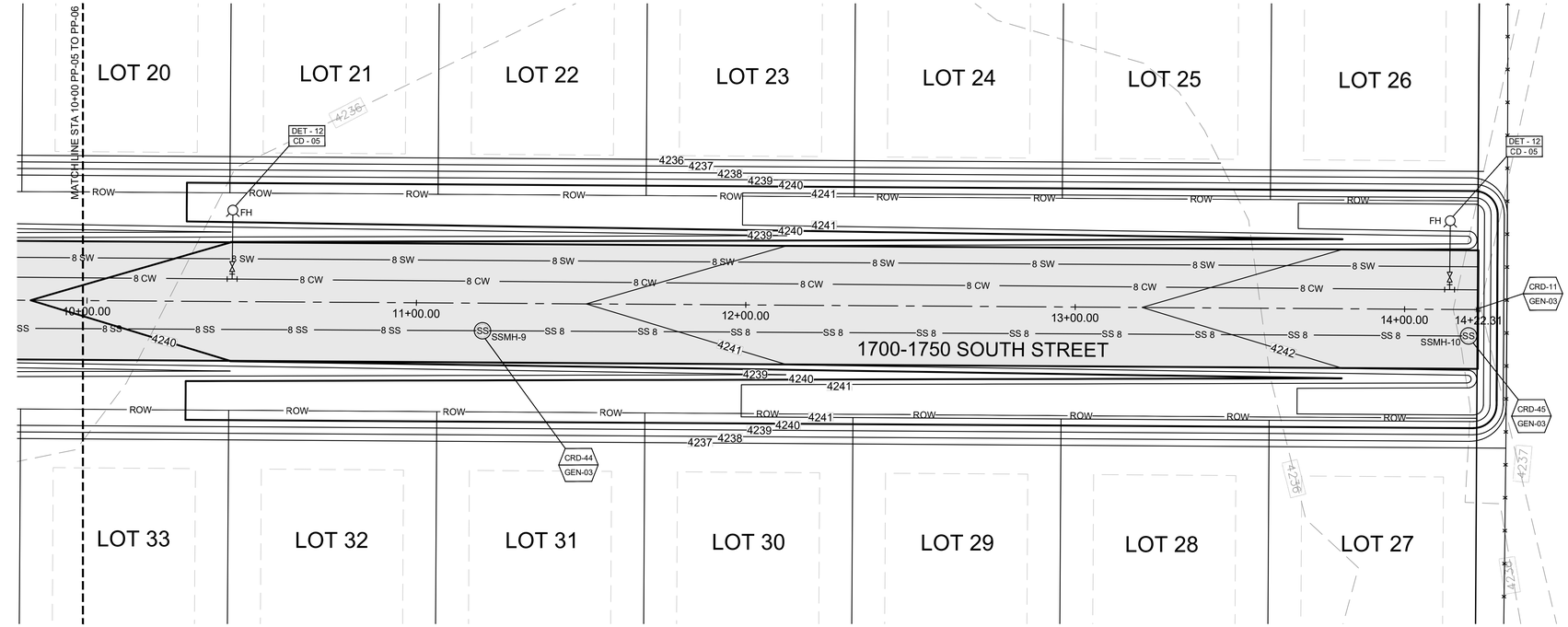
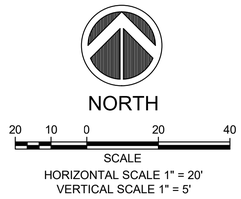
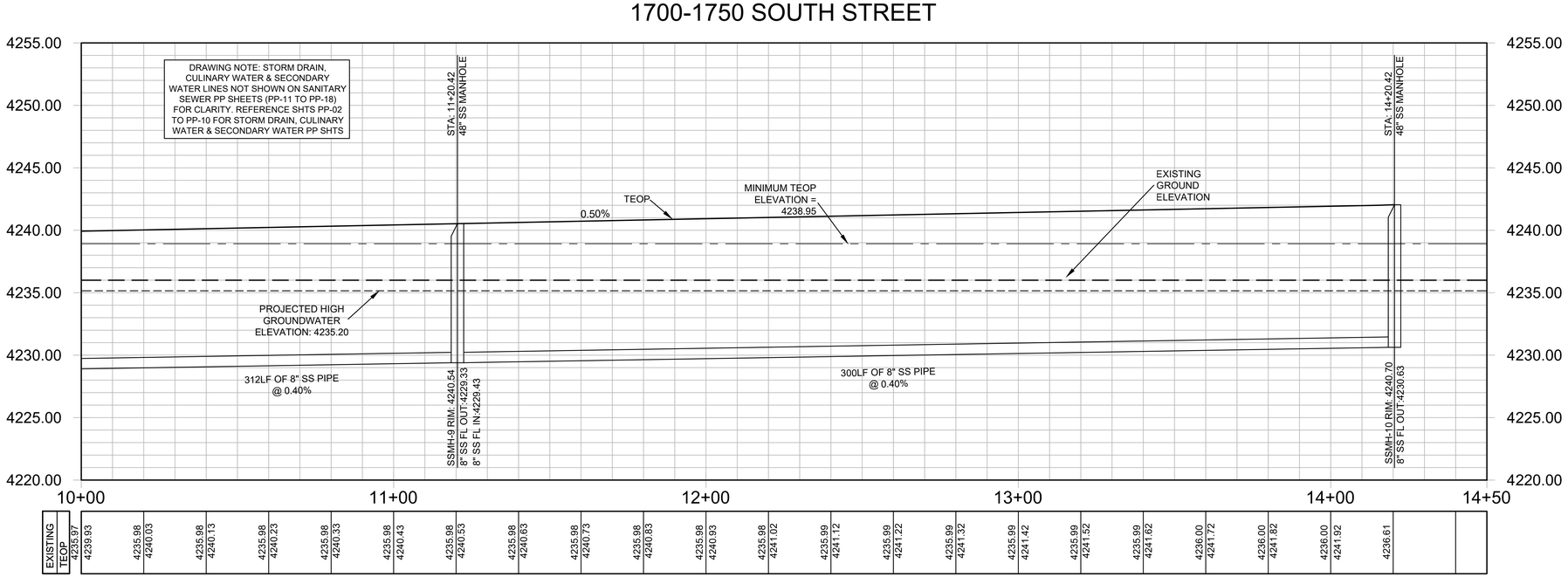
SANITARY SEWER
PLAN & PROFILE

SHEET PP-14





1700-1750 SOUTH STREET



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REGISTERED PROFESSIONAL ENGINEER
EDWIN H. CHRISTENSEN
4874
STATE OF UTAH

Terrex Engineering & Construction, LLC
Land Development - Public Works - Water & Wastewater Utilities
P.O. Box 13059 Ogden, UT 84412 (801) 458-9647

DATE	REVIEWED	SUBMITTAL
7/25/2020	EH Christensen, SE, PE	50% TEC Review Submittal
9/30/2020	EH Christensen, SE, PE	90% Weber County Engineering Submittal
1/20/2021	EH Christensen, SE, PE	100% Weber County Engineering Submittal
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Stagecoach Estates
40.0 Acre - 56 Lot Residential Development

DEVELOPER: Lync Construction
GENERAL ADDRESS: 1800 South 3800 West, West Weber, Utah
LAND SURVEYOR: Boundary Consultants / David E. Hawkes, PLS
Technical Review & Construction Approval: Weber County Engineering

SANITARY SEWER
PLAN & PROFILE

SHEET PP-15

CONSTRUCTION NOTE: GENERAL CONTRACTOR TO LOCATE EXISTING TAYLOR WEST WEBER WATER IMPROVEMENT DISTRICT (TWWWD) AND HOOPER IRRIGATION COMPANY (HIC) TRUNKLINES TO COMPLETE 8" C900 PVC PIPE HOT TAP OF EXISTING CULINARY AND SECONDARY SUBDIVISION SERVICE LINES AT 1800 SOUTH COUNTY ROAD.

LOT 1 | LOT 44 | LOT 45 | LOT 46

3800 WEST STREET

1800 SOUTH STREET

DET - 12 CD - 05 | CRD-27 GEN-03 | SSMH-1 | SSMH-11 | DET - 5 CD - 02 | CRD-17 GEN-03 | CRD-26 GEN-03

CAST-IN-PLACE STORM DRAIN CONCRETE TRANSITION BOX

DETENTION BASIN 21" RCP OUTLET

UTILITY EASEMENT

MATCH LINE STA 5+50 PP-07
MATCH LINE STA 5+50 PP-08

24 SD | CCV-1 | CCV-2 | 4X4 BC-SD | EX 6 CW | 12 SW | 12 CW | 8 SW | 8 CW | 8 SS | 21 SD | ROW | FH | 4X4 B

CRD-12 GEN-03 | CRD-13 GEN-03

0+00.00 | 1+00.00 | 2+00.00 | 3+00.00 | 4+00.00 | 5+00.00

EXISTING EDGE OF PAVEMENT

EXISTING WEBER COUNTY OPEN DRAIN

8" DIP PLUG

NORTH

20 10 0 20 40

SCALE
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

1800 SOUTH STREET

DRAWING NOTE: STORM DRAIN, CULINARY WATER & SECONDARY WATER LINES NOT SHOWN ON SANITARY SEWER PP SHEETS (PP-11 TO PP-18) FOR CLARITY. REFERENCE SHTS PP-02 TO PP-10 FOR STORM DRAIN, CULINARY WATER & SECONDARY WATER PP SHTS

EXISTING TEOP

STA. 1+88
8" SANITARY SEWER

This sewer will more than likely slope to the east and then to the south. We will want to make sure that the sewer can serve to 1400 South to the north.

What is the NAVD that is being used on the elevations?

PROJECTED HIGH GROUNDWATER ELEVATION: 4233.15

384LF OF 8" SS PIPE @ 0.40%

SSMH-1 RIM: 4238.66
8" SS OUT:4222.51
8" SS FL IN:4222.61
8" SS FL IN:4225.36

FL: 4224.75

21" RCP FL: 4233.91

4255.00 | 4250.00 | 4245.00 | 4240.00 | 4235.00 | 4230.00 | 4225.00 | 4220.00 | 4215.00

0+00 | 1+00 | 2+00 | 3+00 | 4+00 | 5+00 | 5+50

4232.98	4233.12	4233.50	4233.40	4233.32	4233.23	4233.13	4233.04	4232.99	4232.97	4233.03	4233.11	4233.19	4233.25	4233.08	4232.99	4232.98	4232.99	4233.15	4233.38	4233.33	4233.11	4233.00	4232.99	4232.99	4232.99	4232.99

WEBER COUNTY ENGINEERING DEPARTMENT
FINAL SET APPROVED CONSTUCTION DRAWINGS

SITE BOUNDARY & TOPOGRAPHIC SURVEY
Boundary Consultants
Professional Land Surveyors
5554 West 2425 North, Hooper, UT 84315 (801) 729-1569
David E. Hawkes, PLS Utah No. 356548

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REGISTERED PROFESSIONAL ENGINEER
183487
EDWARD H. CHRISTENSEN
STATE OF UTAH

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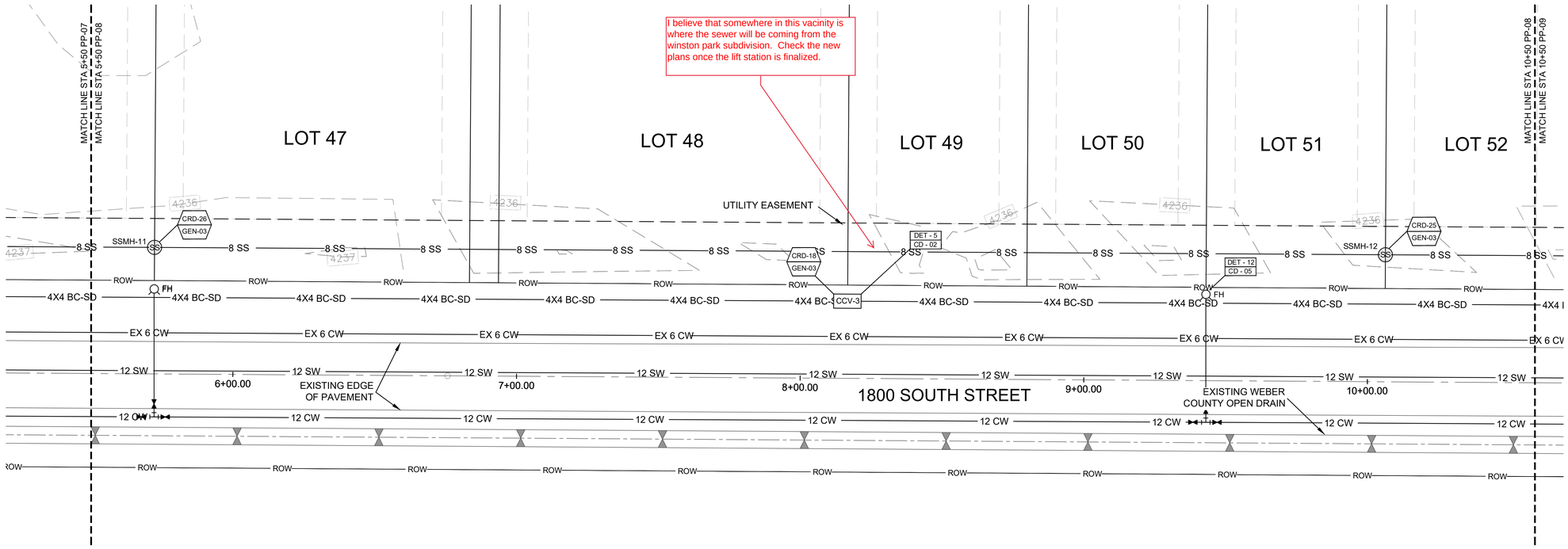
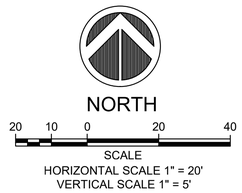
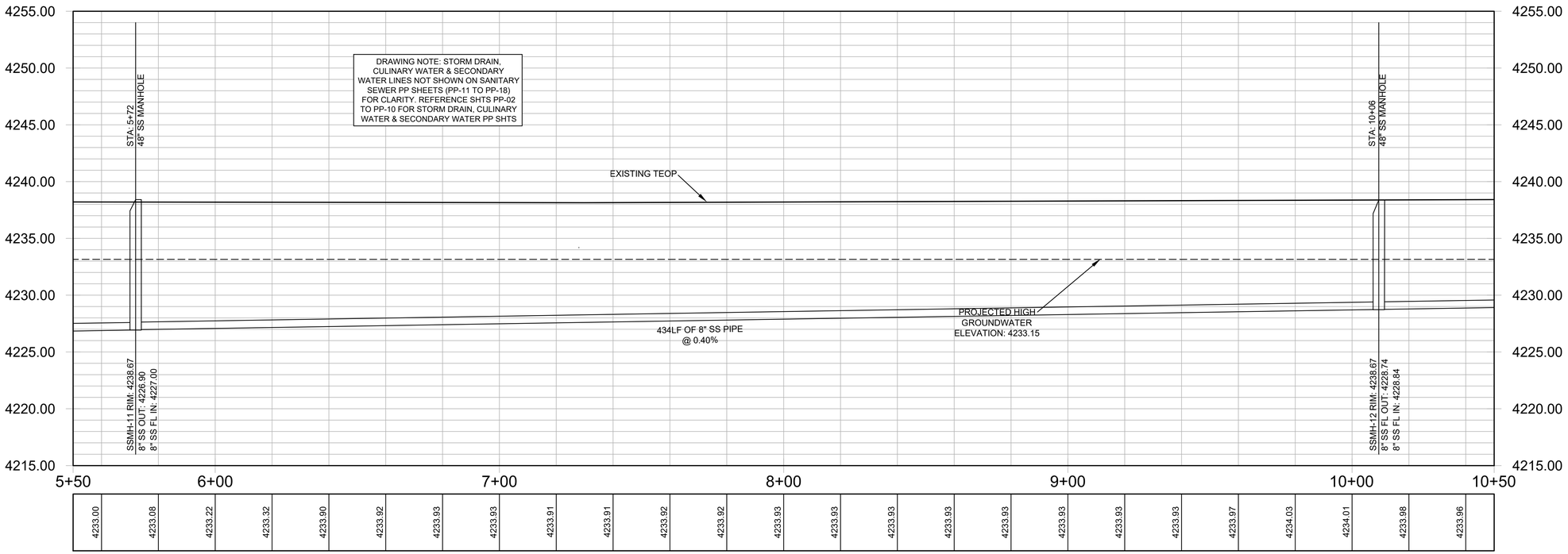
SANITARY SEWER PLAN & PROFILE

SHEET PP-16





1800 SOUTH STREET



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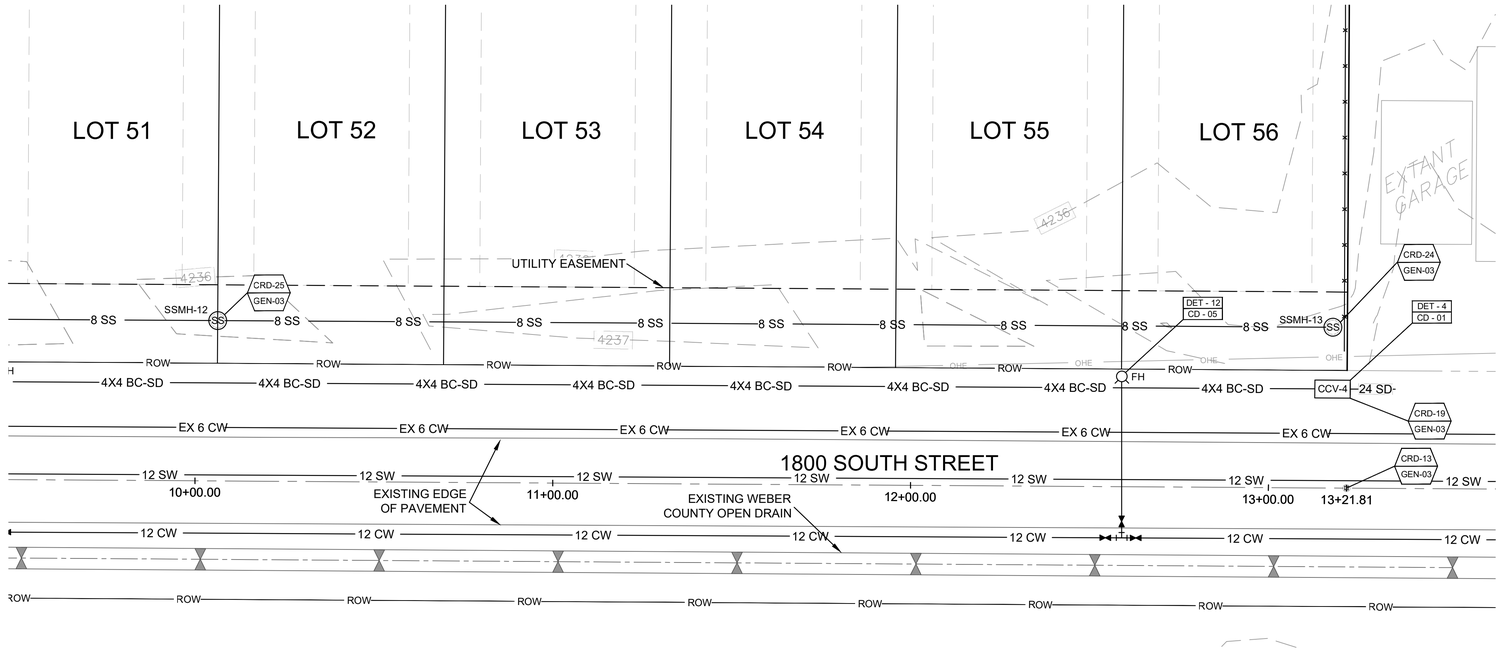
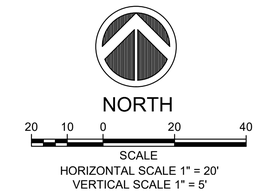
SHEET PP-17





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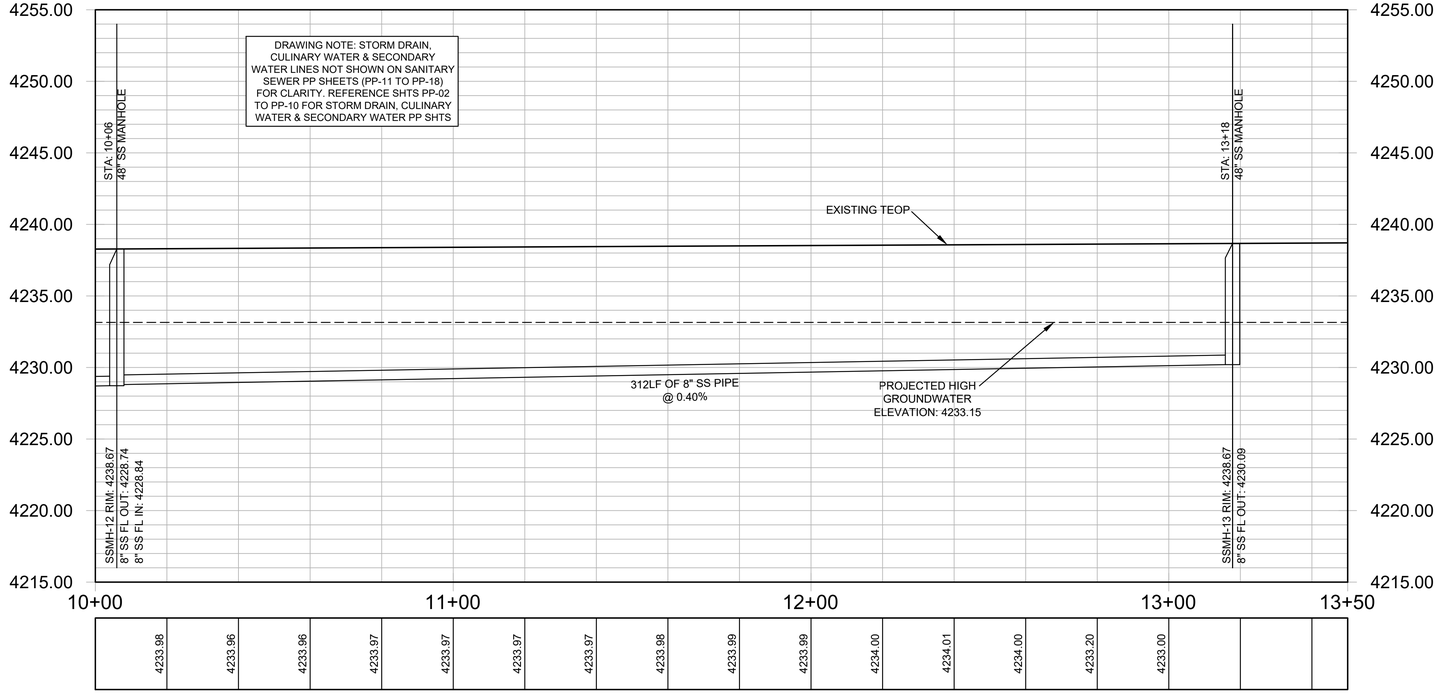

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REGISTERED PROFESSIONAL ENGINEER
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EDWIN H
CHRISTENSEN
4/27/21
STATE OF UTAH

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SANITARY SEWER
PLAN & PROFILE

SHEET PP-18

General SWPPP Information, Regulations and Notes

This Storm Water Pollution Prevention Plan is developed in accordance with the General NPDES Permit for Storm Water Discharges Associated with Construction Activity (TNCGP).

Owner: Lync Construction
Contact Person: Mandy Peterson
Cell Phone: (801) 603-7853
Email: mandy.peterson27@gmail.com

A current version of this Storm Water Pollution Prevention Plan (SWPPP), the Notice of Intent (NOI), and the Notice of Coverage (NOC) will be kept on site for the duration of the project. These items will be available for all operators and site personnel involved with erosion prevention and sediment controls, and available to the Utah Department of Environmental Quality and Weber County Engineering Department personnel visiting the site. The permittee will also post the NOC, owner and General Contractor contact information, and project description on the project SWPPP signage as posted on the construction site where construction is underway.

Project Description:

The proposed residential subdivision (Stagecoach Estates) will be constructed in accordance to the engineering construction drawings and specifications as provided herein. The project will include the construction of 2,400 ft. of new paved residential streets including all underground public works utilities (culinary water, secondary water, sanitary sewer and storm drain). The construction of the subdivision will also require the placement 1,320 ft. of a 12" high-pressure secondary water trunk-line and 1,320 ft. of a 72" by 36" concrete box culvert storm drain both within the utility right-of-way for 1800 South street in West Weber, Utah from roughly 3700 West to 3900 West as shown on the engineering construction drawings provided herein. Said installation of the high-pressure secondary water trunk-line and concrete box culvert storm drain will require the demolition and replacement of existing pavement within the North half of 1800 South over the above-referenced 1,320 ft. of frontage. The subdivision will encompass 21.6 acres of undeveloped agricultural livestock pasture land.

Construction Sequencing and General Construction Notes:

1. General Note: All construction materials including excavated earth, road subbase, imported trench backfill, pipe bedding, crushed aggregate, utility piping and appurtenances, demolition debris and materials, and the like shall be stockpiled or stored within the construction site at an unspecified location as determined by the project General Contractor.
2. Completion of general site rough grading to establish alignments of proposed streets in addition to culinary water, secondary water, sanitary sewer and storm drainage buried utility pipelines.
3. Completion of all trench and backfill work to place all underground piped utilities and piping appurtenances.
4. Completion of all rough grading to establish subgrades for the placement of compacted road-base materials as required by the geotechnical engineering report and specifications.
5. Completion of demolition and removal of existing asphalt and concrete pavement materials at the North half of 1800 South county road in preparation of the placement of the 12" high-pressure secondary water pipeline and 72" by 36" box culvert storm drain.
6. Completion of all trench and backfill work to place the above-referenced secondary water-line and box culvert storm drain piping and appurtenances.
7. Completion of all rough grading to establish subgrades for the placement of compacted road-base materials as required by the geotechnical engineering report and specifications for the 1800 South county road replacement.
8. Placement of asphaltic pavement materials to re-establish paved traffic lanes on the 1800 South county road.

Existing Construction Site Conditions:

The project construction site is currently used as non-irrigated agricultural pasture land for the keeping of domestic livestock including cattle and horses. As documented in the geotechnical report prepared by CMT Engineering (Betoldi Property, 1800 South about 3900 West, CMT Project No. 10878, March 7, 2018), the soil surface is primarily consisting of clayey sandy topsoil with relatively low hydraulic permeability rates that's susceptible to significant storm runoff flows. Additionally, the site has a high groundwater condition with seasonal groundwater elevations fluctuating to within 1.0 ft. of existing ground elevations. The project General Contractor will be required to dewater the construction site in order to drawdown groundwater elevations sufficient to place buried utility piping within proposed subdivision street utility easements. The existing groundwater condition will also require 2.0 ft. to 4.0 ft. fill sections along certain segments of proposed subdivision streets.

The entire project site, or property, is 40.0 acres in total area. However, the portion of the total acreage that is considered developable into a residential subdivision, and subject to SWPPP regulations, is 21.62 acres. The reduction in acreage for the developable portion of the overall site or property acreage, has been done to adhere to Weber County zoning ordinances for cluster subdivisions in unincorporated Weber County.

Disturbed Area:

As alluded to above, the disturbed area is approximately 21.62 acres. The boundary of the disturbed area is contiguous with the legal boundary of the proposed residential subdivision (reference the Surveyor's Record Survey for Stagecoach Estates residential subdivision as submitted by Boundary Consultants, professional land surveyors, to the Weber County Surveyor's Office). It is expected that the project General Contractor will engage in significant earthwork and dewatering activities over a majority of the disturbed area. The stated earthwork shall include, but not necessarily limited to, site scarification of existing vegetation, demolition of existing farm out-buildings and irrigation structures, rough grading for proposed street subgrade preparation, trenching and backfill operations to place buried utility piping, placement of compacted road base, etc.

Implementation:

Erosion prevention and sediment control (EPSC) features are as shown this SWPPP.

All EPSC measures shall be installed prior to earthwork operations, as described above, and shall stay in place until disturbed areas are stabilized after the completion of all civil-site construction as shown on the attached project construction drawings.

Straw bales will not be accepted as a replacement for silt fencing. No discharge from the project construction site shall cause an objectionable color contrast within local receiving stream. All silt fencing shall be installed and maintained as required to prevent sediment from this project being deposited on adjacent property or into adjacent drainage paths.

Pre-construction vegetative ground cover shall not be destroyed, removed, or disturbed more than 14 calendar days prior to excavation or earth moving activities unless the area is seeded and/or mulched or other temporary cover is installed. EPSC measures must be in place and functional before earth moving operations begin, and must be constructed and maintained throughout the construction period. EPSC measures are designed to minimize erosion and maximize sediment removal from a 5-year, 24-hour storm, as a minimum. Temporary measures to remove any EPSC measures, or facility, including sediment fencing, storm inlet sediment fencing or protections, concrete washout basins, construction entrance improvements, etc. is allowed with 24-hour notice and approval from Weber County Engineering Department. All removed EPSC measures, or facilities, shall be replaced, or re-established at the end of the workday.

Stabilization measures shall be initiated as soon as possible in project areas where construction activities have temporarily or permanently ceased. Temporary or permanent soil stabilization at the construction site must be completed no later than 15 days after the construction activity, in that portion of the overall construction site, has temporarily or permanently ceased. The runoff coefficient will be the same after construction as preconstruction.

Sediment laden water pumped from excavations and work areas must be discharged to a temporary sedimentation basin before being released by a means that does not cause erosion or siltation of adjacent waters. If sediment filter bags are used, they should be properly disposed after reaching capacity.

Inspection and Maintenance:

The General Contractor shall be responsible for the removal of accumulated silts and sediments from the erosion and sediment control devices. The General Contractor shall be responsible for all repair and maintenance of all EPSC measures or facilities. General Contractor shall inspect outfalls and sediment control twice a week at least 72 hours apart, using the approved inspection form as provided by Weber County Engineering Department. The General Contractor shall also inspect before and after rainfall events. During extended rainfall events, sediment traps may be inspected daily during construction if required. The General Contractor shall remove accumulated silt at or before it reaches 50% design capacity, including but not limited to silt fence and rock or straw bale check dams. All silts and/or sediments removed from the erosion/sediment control devices shall be deposited onsite in such a manner as to prevent them from re-entering the control devices or exiting the site through the storm drainage systems or surface drainage. Off-site accumulations of sediment that have not reached a stream must be removed at a frequency sufficient to minimize offsite impacts.

Twice weekly inspections must be performed by an individual having active certification with the "Fundamentals of Erosion Prevention and Sediment Control Level I" course. A copy of the certification or training record for the inspector certification shall be kept on file by the Owner's contact person as given above.

Special Assurance Site Assessment shall be performed at outfalls that have drainage areas greater than 5 acres. This assessment must be performed by a Professional Engineer, Certified Professional in Erosion and Sediment Control, or an individual that has completed the "Level II Design Principles for Erosion Prevention and Sediment Control for Construction Sites" course. This outfall check must be completed within one month of the commencement of construction.

General:

There are no known discharges from industrial activity associated with this project site. The General Contractor is responsible for controlling and reducing pollutants from materials stored on site. All fueling of equipment and vehicles on site will be conducted near the construction staging area. Any spillage will be removed immediately. Contaminated soils will be placed on heavy plastic and covered or placed into approved containers to prevent contact with storm water. All fuel tanks will be in the containment area. Any spill in excess of 2 gallons will be reported.

If a release containing a hazardous substance in an amount equal to or in excess of a reporting quantity established under either 40 CFR 117 or 40 CFR 302 occurs within a 24 hour period, the General Contractor shall immediately notify the permittee who shall then do the following: notify the National Response Center (NRC) at 1-800-424-8802 and the Weber County Sheriff's Department at 801-629-8221 as well as the Utah Department of Environmental Quality at 801-536-4123.

Signage:

The project General Contractor shall post a 4' by 8' SWPPP compliance sign at a conspicuous location within the subdivision construction site that can be readily read form the 1800 South project frontage county road. The sign shall have a white background with prominent SWPPP red lettering across the top. Other lettering shall be red but smaller in size and formatted to fill the sign area to the extent possible. The sign shall give public notice of the following:

- Stormwater Pollution Prevention Plan can be Inspected at the Office of Lync Construction at (Address to be Provided by Lync Construction)
- Lync Construction Authorization Number: (to be Provided by Lync Construction)
- Operator: Lync Construction
- Contact: Mandy Peterson at (801) 603-7853
- Construction Site Encompasses 21.6 acres
- General Construction Site Address: 1800 South 3800 West, West Weber Utah, 84401
- Unauthorized Trespassing within the Construction Site Shall be Subject to Fines

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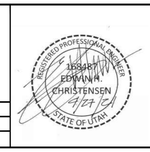

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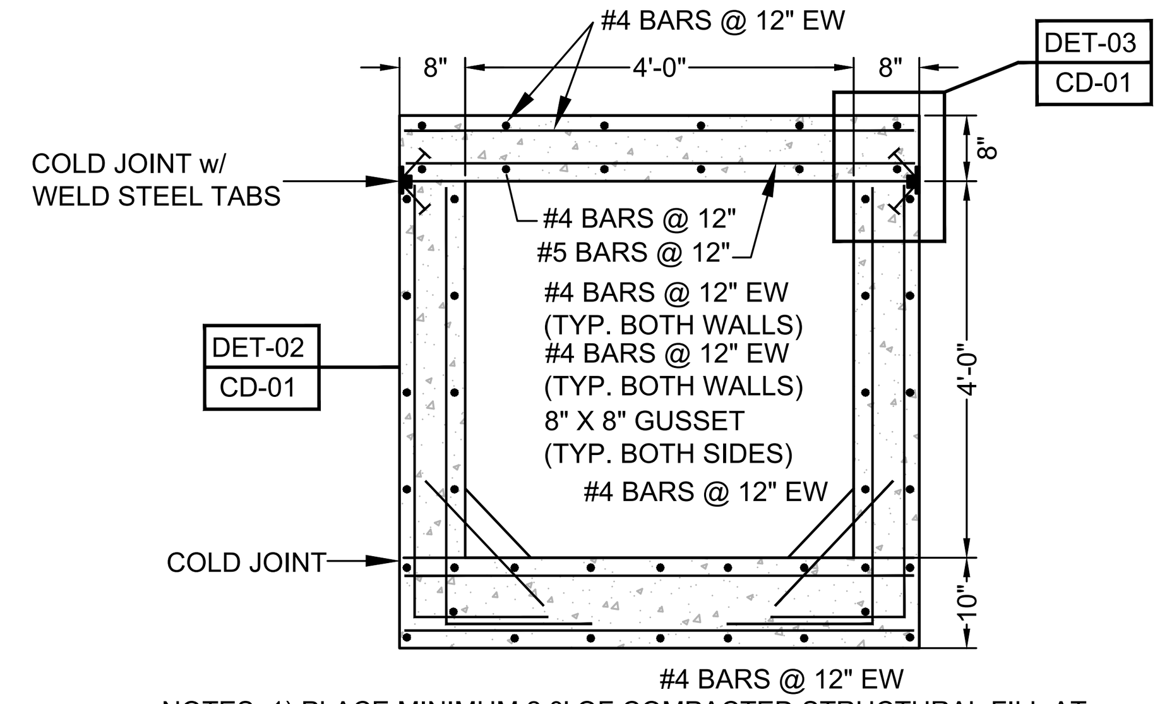
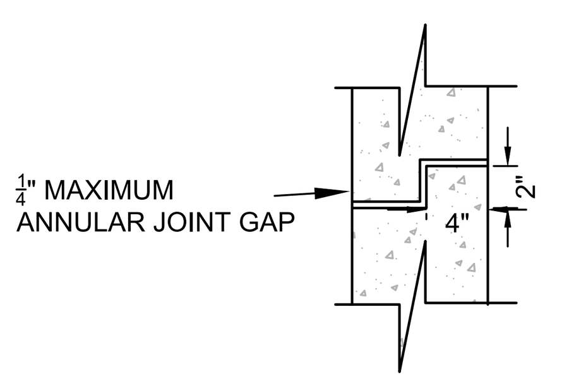
STORM WATER POLLUTION PREVENTION PLAN

SHEET SWP-01

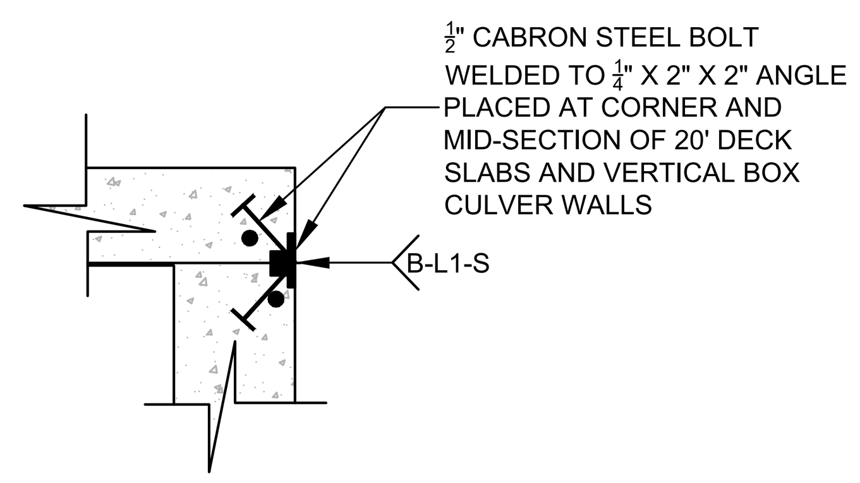


NOTES: 1) PLACE MINIMUM 2.0' OF COMPACTED STRUCTURAL FILL AT BOX CULVERT BASE. 2) 20' MAXIMUM SECTION LENGTH WITH TONGUE & GROOVE JOINTS CONNECTING INDIVIDUAL SECTIONS. 3) ALL REBAR LAP SLICES SHALL BE MINIMUM OF 24"

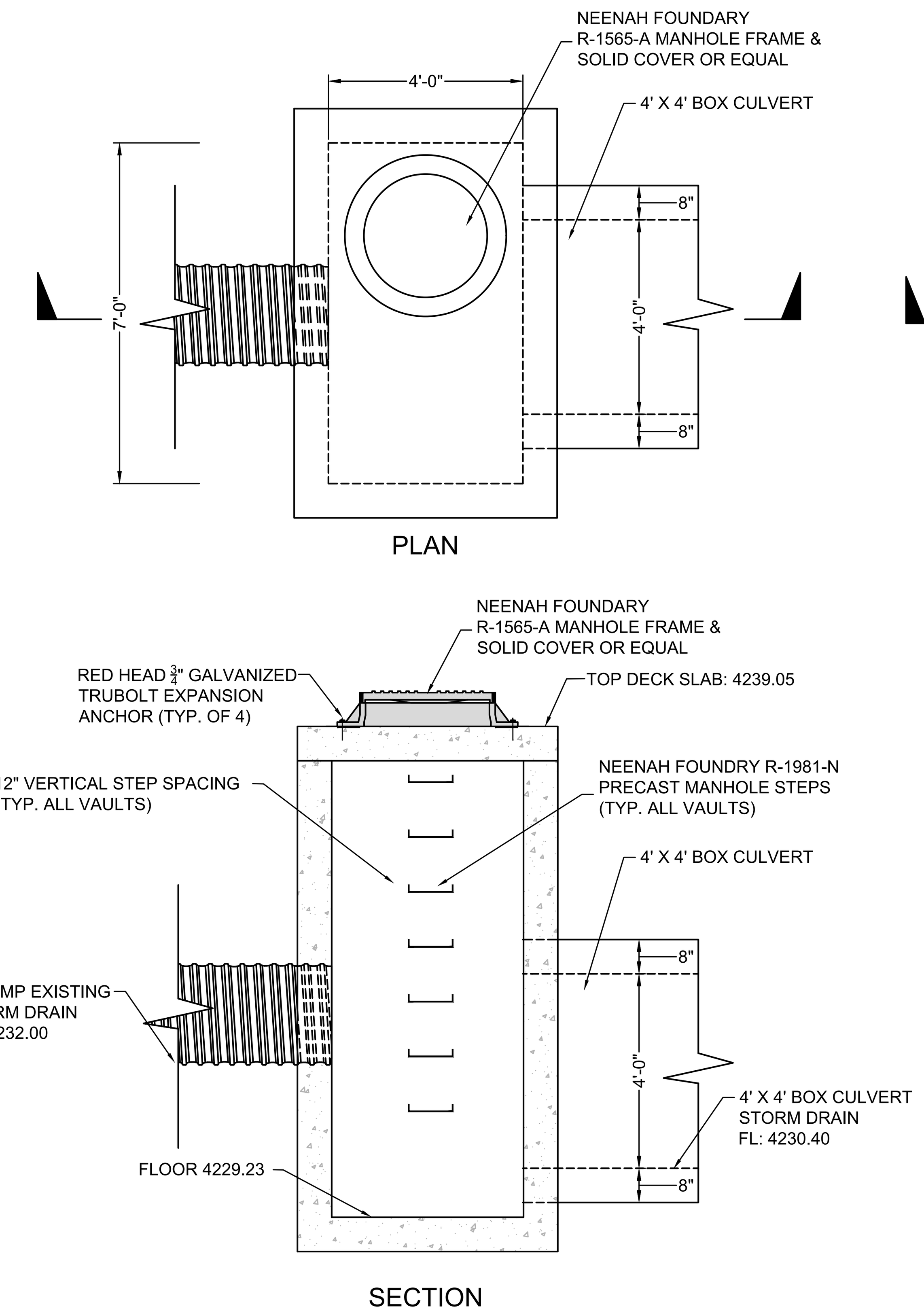
DET - 1	CAST-IN-PLACE CONCRETE BOX CULVERT
PP - 02	NO SCALE



DET - 2	TONGUE & GROOVE ANNULAR JOINT
CD-01	NO SCALE

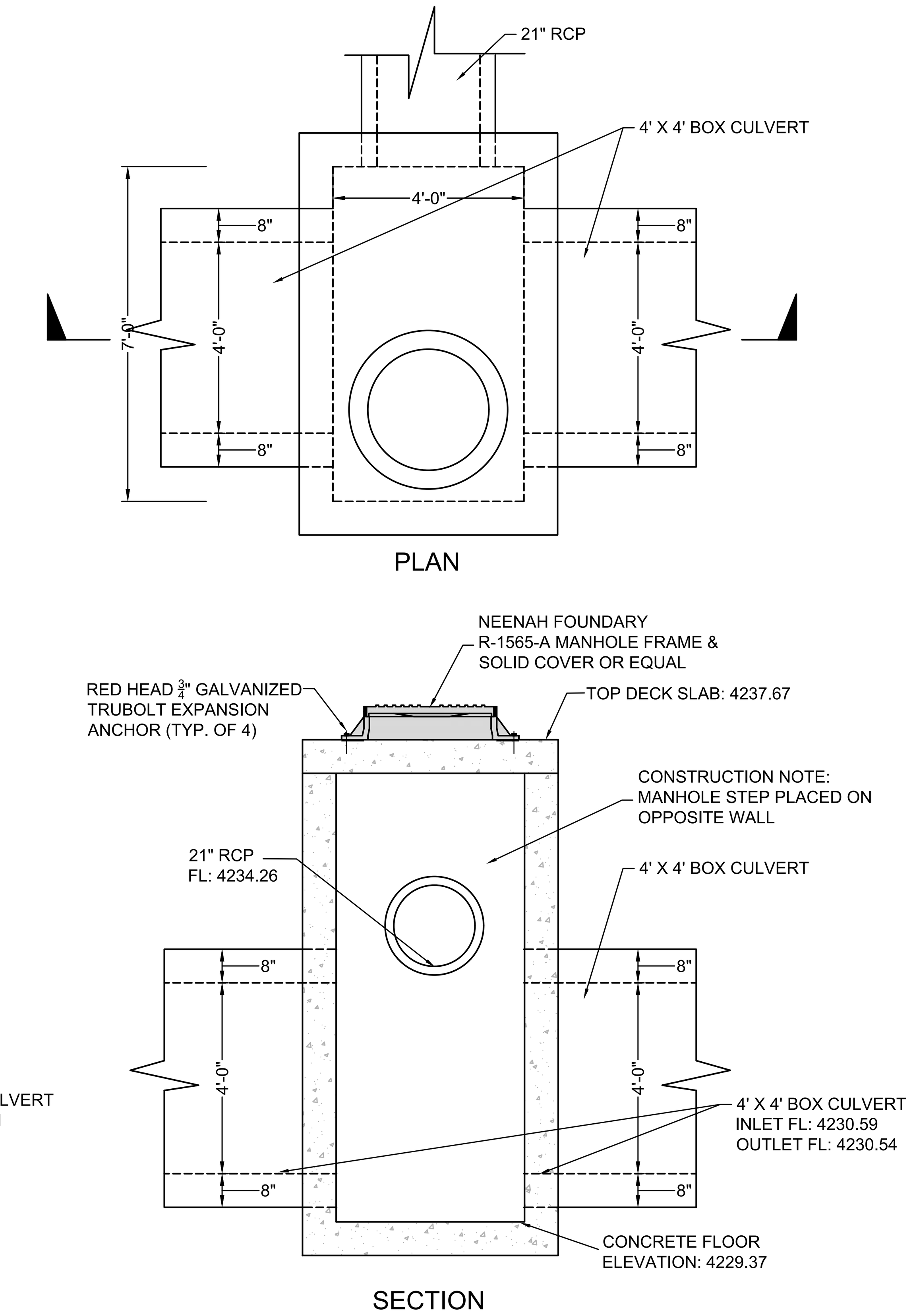


DET - 3	CONCRETE TOP DECK - WALL WELDING TAB INSERT
CD-01	NO SCALE



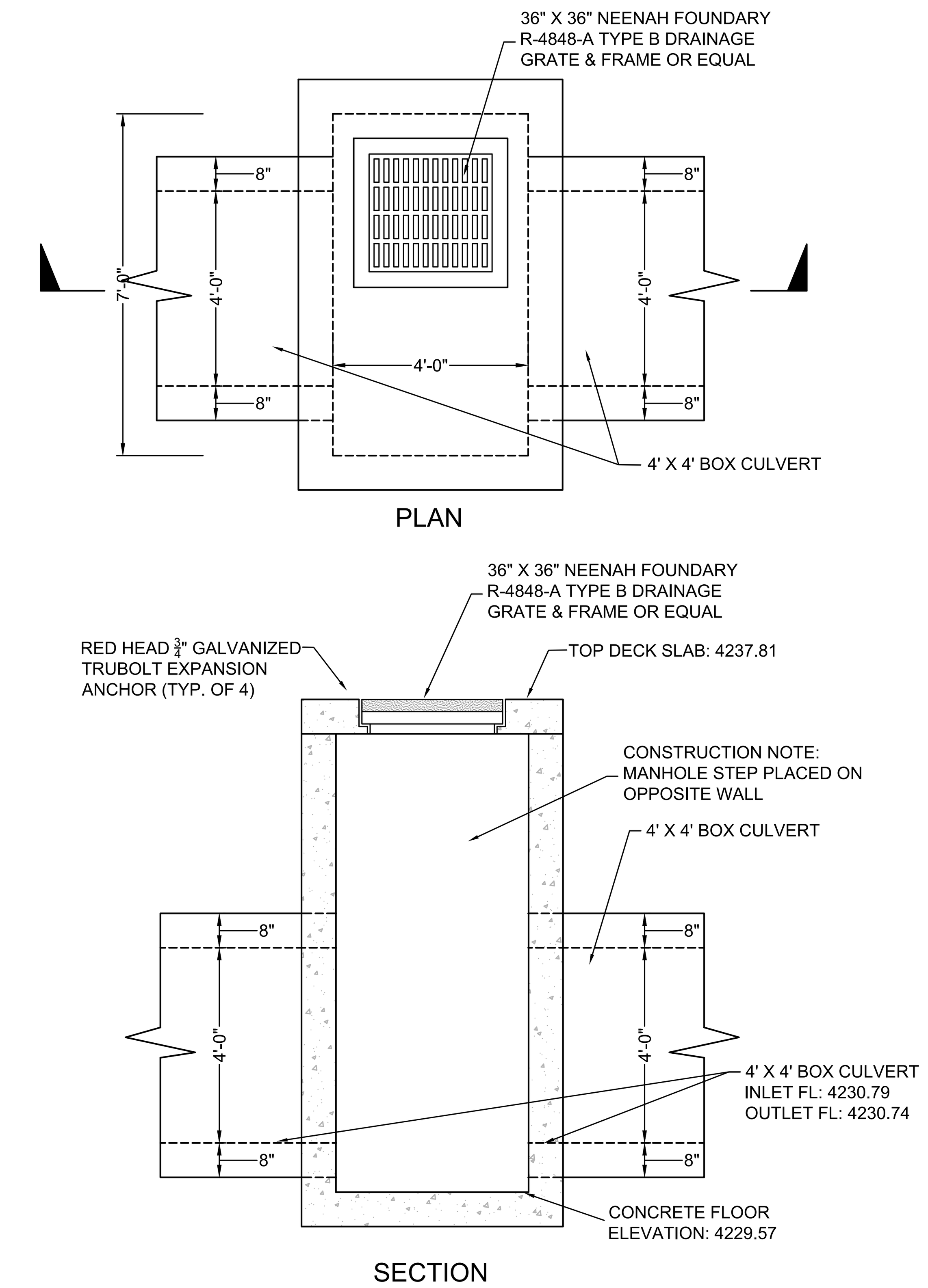
NOTES: 1) PRECAST VAULT MANUFACTURER TO ESTABLISH CONCRETE WALL, DECK AND BASE THICKNESSES PER ASTM STANDARDS, 2) PLACE MINIMUM 2.0' OF COMPACTED STRUCTURAL FILL AT CCV-1 BASE

DET - 4	PRECAST CONCRETE STORM DRAIN COLLECTION VAULT CCV-1
PP - 07	NO SCALE



NOTES: 1) PRECAST VAULT MANUFACTURER TO ESTABLISH CONCRETE WALL, DECK AND BASE THICKNESSES PER ASTM STANDARDS, 2) MANHOLE STEPS/RUNGS NOT SHOWN (REFERENCE DET-X CCV-1, PLACE MINIMUM 2.0' OF COMPACTED STRUCTURAL FILL AT CCV-1 BASE

DET - 5	PRECAST CONCRETE STORM DRAIN COLLECTION VAULT CCV-2
PP - 07	NO SCALE



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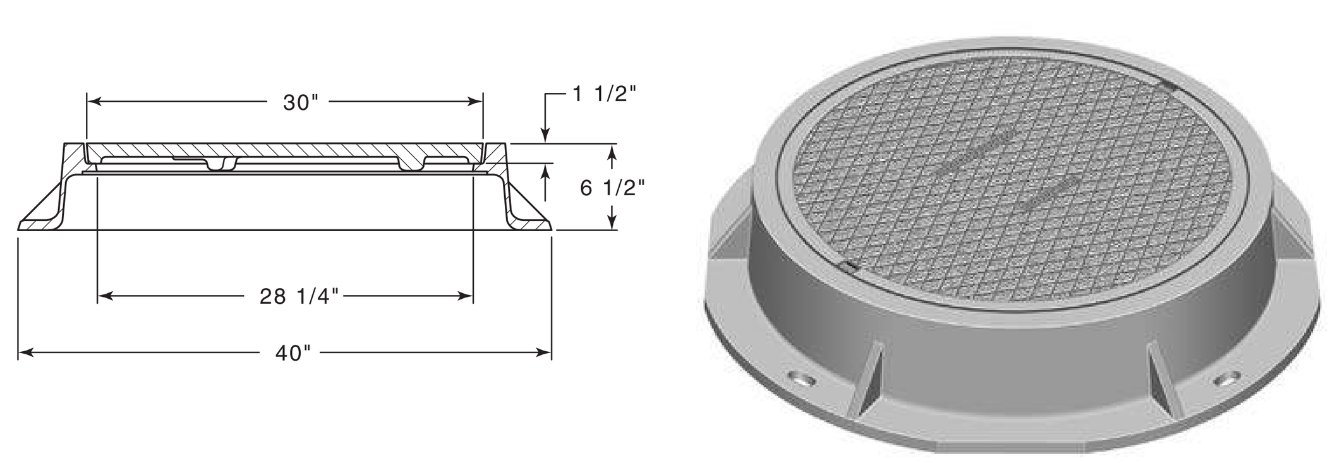
DET - 6	PRECAST CONCRETE STORM DRAIN COLLECTION VAULT CCV-3
PP - 07	NO SCALE

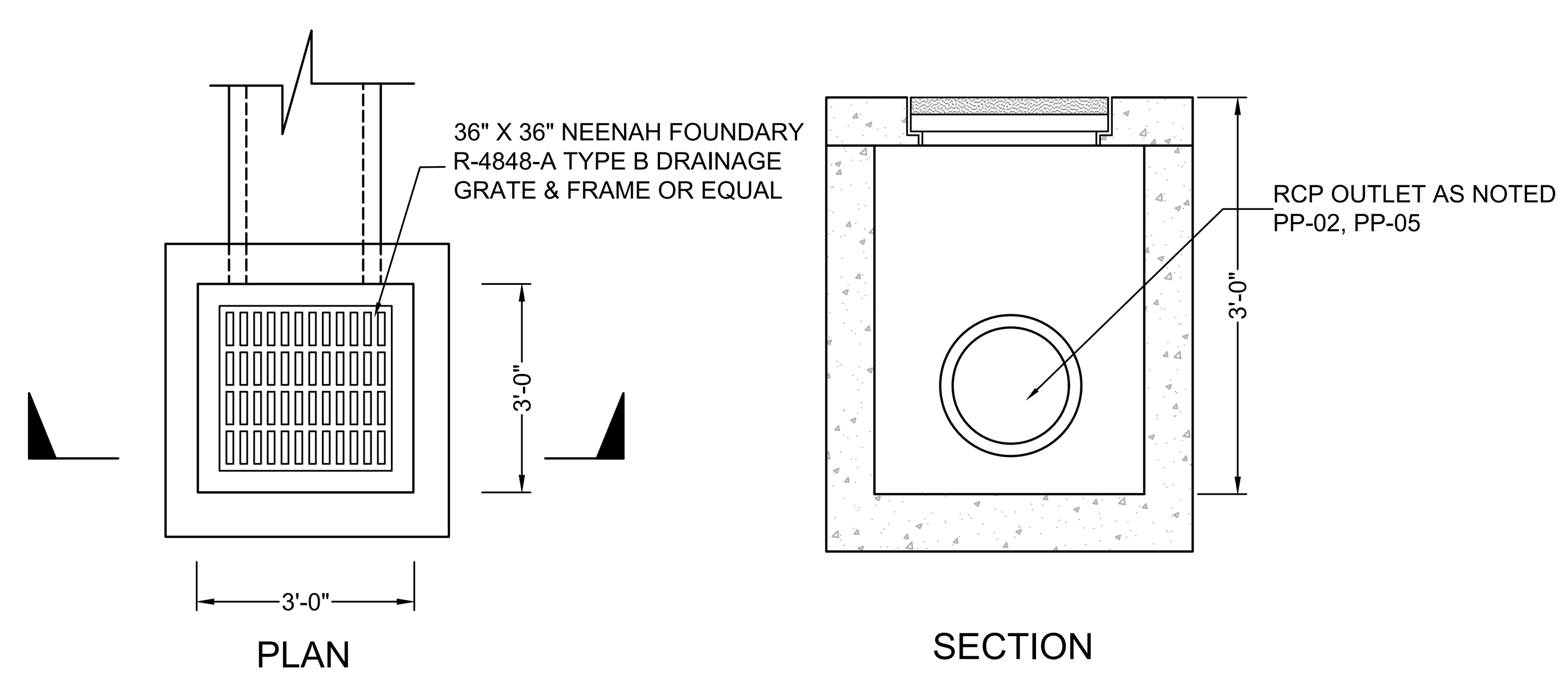
Manhole Frame, Solid Lid

Heavy Duty

Furnished with four 1" x 2" anchor holes on 37" diameter bolt circle.



DET - 7	MANHOLE RING & LID COVER
PP - 07	NO SCALE



DET - 7	PRECAST CONCRETE GRATED CATCH BASIN
PP - 07, PP- 05	NO SCALE

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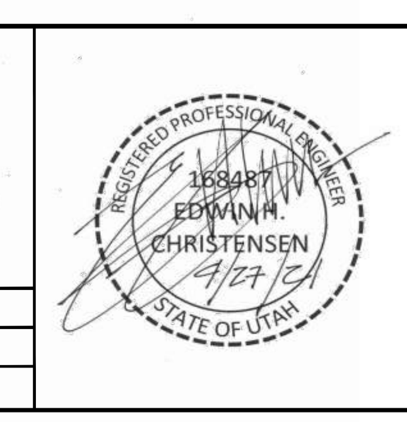

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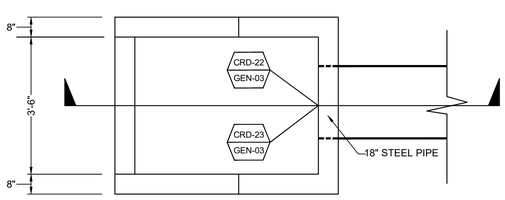
Stagecoach Estates
40.0 Acre - 56 Lot Residential Development

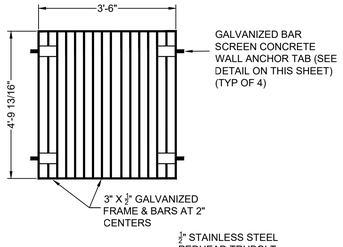
DEVELOPER: Lync Construction
GENERAL ADDRESS: 1800 South 3800 West, West Weber, Utah
LAND SURVEYOR: Boundary Consultants / David E. Hawkes, PLS
Technical Review & Construction Approval: Weber County Engineering

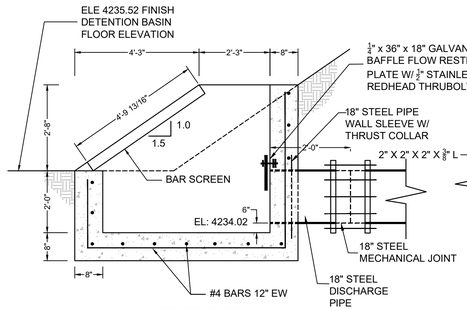
SITE CIVIL DETAILS

SHEET CD-01

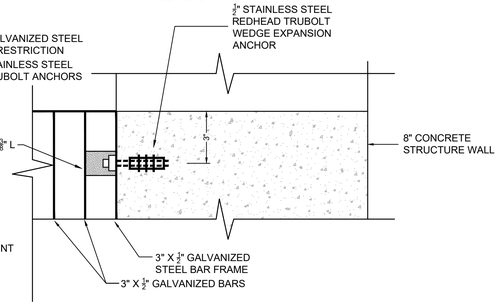


PLAN

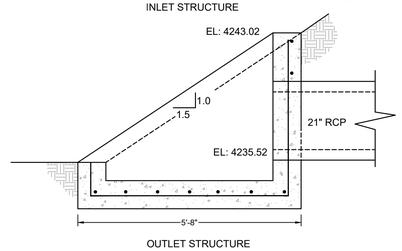




INLET STRUCTURE



BAR SCREEN DETAIL

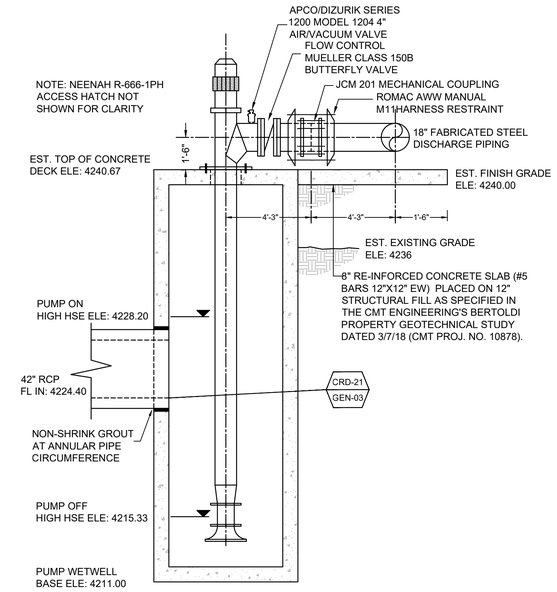


OUTLET STRUCTURE

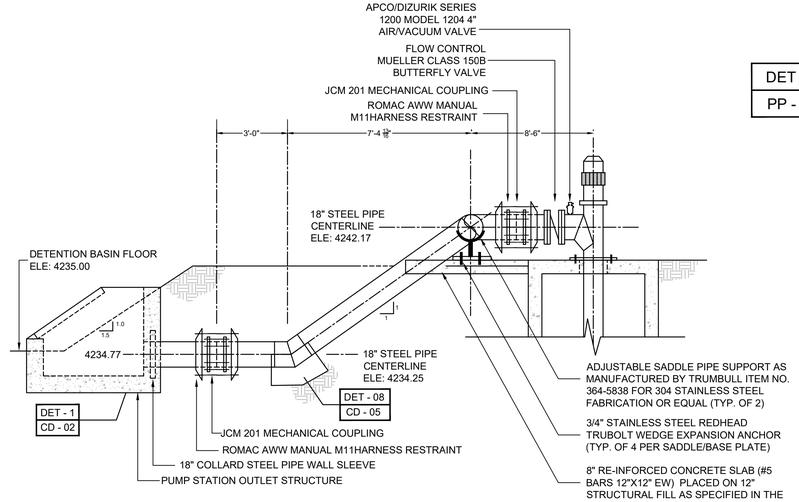
SECTION

DESIGN NOTE: STRUCTURE TYPICAL OF DETENTION BASIN PUMP STATION, DETENTION BASIN INLET, DETENTION BASIN OUTLET STORM DRAINAGE STRUCTURES AS SHOWN ON SHEET PP-10. MISCELLANEOUS CONNECTION AND WALL FITTINGS FOR 18" STEEL PIPE PUMP STATION INLET NOT SHOWN. (REFERENCE SECTION S -02 THIS SHEET)

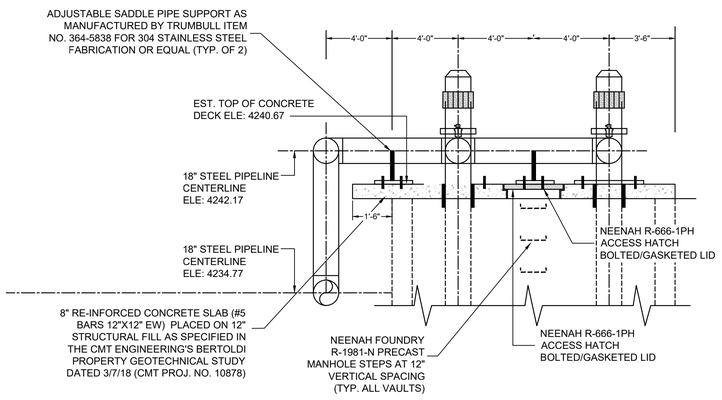
DET - 1	DETENTION BASIN PUMP STATION INLET AND STORM DRAIN OUTLET STRUCTURES
PP - 10	NO SCALE



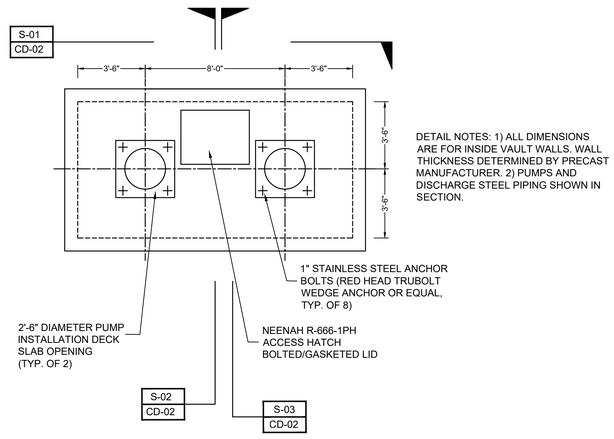
S - 02	STORM DRAIN PUMP AND PRECAST CONCRETE WETWELL VAULT SECTION
CD - 02	NO SCALE



S - 03	STORM DRAIN PUMP STATION 18" DISCHARGE STEEL PIPE MANIFOLD SECTION
CD - 02	NO SCALE



S - 01	STORM DRAIN PUMP STATION 18" DISCHARGE STEEL PIPE MANIFOLD SECTION
CD - 02	NO SCALE



DETAIL NOTES: 1) ALL DIMENSIONS ARE FOR INSIDE VAULT WALLS. WALL THICKNESS DETERMINED BY PRECAST MANUFACTURER. 2) PUMPS AND DISCHARGE STEEL PIPING SHOWN IN SECTION.

DET - 2	PRECAST CONCRETE WETWELL VAULT DECK PLAN
PP - 10	NO SCALE

WEBER COUNTY ENGINEERING DEPARTMENT
FINAL SET APPROVED CONSTUCTION DRAWINGS

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Boundary Consultants
Professional Land Surveyors
5554 West 2425 North, Hooper, UT 84315 (801) 729-1569
David E. Hawkes, PLS Utah No. 356548

DATE	SURVEY / SUBMITTAL
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3/4/2021	Weber County Surveyor's Record Plat

REGISTERED PROFESSIONAL ENGINEER
183487
EDWIN R. CHRISTENSEN
STATE OF UTAH

Terrex Engineering & Construction, LLC
Land Development - Public Works - Water & Wastewater Utilities
P.O. Box 13059 Ogden, UT 84412 (801) 458-9647

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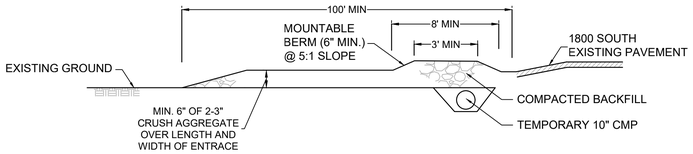
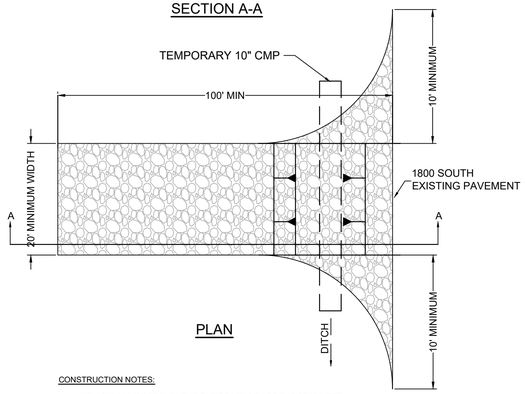
SITE CIVIL DETAILS

SHEET CD-02

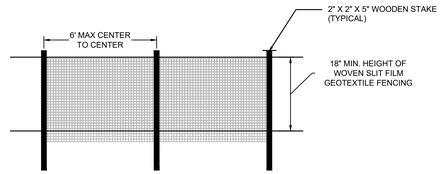




CONSTRUCTION NOTES:

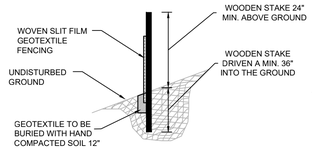
1. VEHICLES MUST TRAVEL THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.
2. IF THE ENTRANCE IS AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN THE SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE.
4. PLACE CRUSHED AGGREGATE (2-3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS.

DET - 1	STABILIZED CONSTRUCTION ENTRANCE
SWP-01	NO SCALE

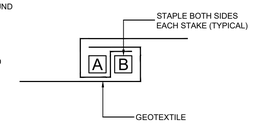


FENCE ELEVATION

NOTE: SILT FENCE LINE OFFSET 5.0 FT. INSIDE THE LIMIT OF DISTURBANCE / PROPERTY LINE.



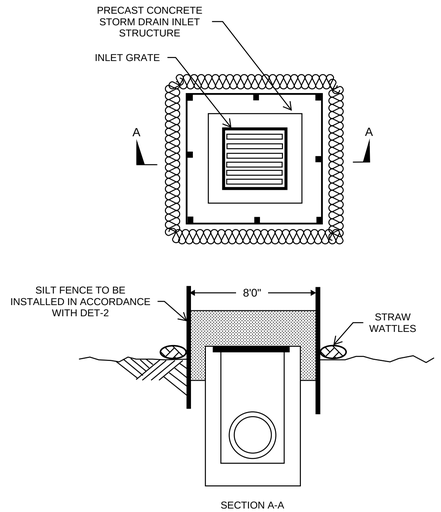
FENCE CROSS SECTION



JOINING TWO ADJACENT SILT FENCE SECTION (TOP VIEW)

1. USE WOOD POSTS 2 X 2 X ¾ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST.
2. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
3. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF THE FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL SILT FENCE.

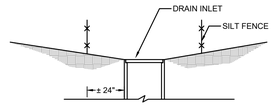
DET - 2	SILT FENCE DETAIL
SWP-01	NO SCALE



DET - 3	INLET PROTECTION DETAIL
SWP-01	NO SCALE

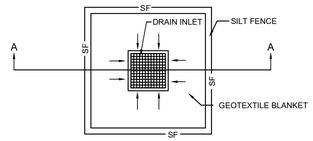
SIZE RANGE	D_{50}	D_{100}	AASHTO
2 TO 3 INCHES	2.5 INCHES	3 INCHES	M-43

DET - 4	AGGREGATE GRADATION SPECIFICATIONS
SWP-01	NO SCALE



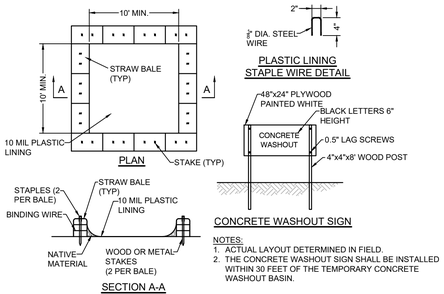
SECTION A-A

NOTE: REFERENCE SILT FENCE DETAIL FOR OVERLAPPING CONNECTION OF GEOTEXTILE FENCE SHEETS.



PLAN

DET - 5	STORM DRAIN CATCH BASIN SILT FENCE DETAIL
SWP-01	NO SCALE



NOTES:
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT BASIN.

DET - 6	CONCRETE WASHOUT DETAIL
SWP-01	NO SCALE

WEBER COUNTY ENGINEERING DEPARTMENT
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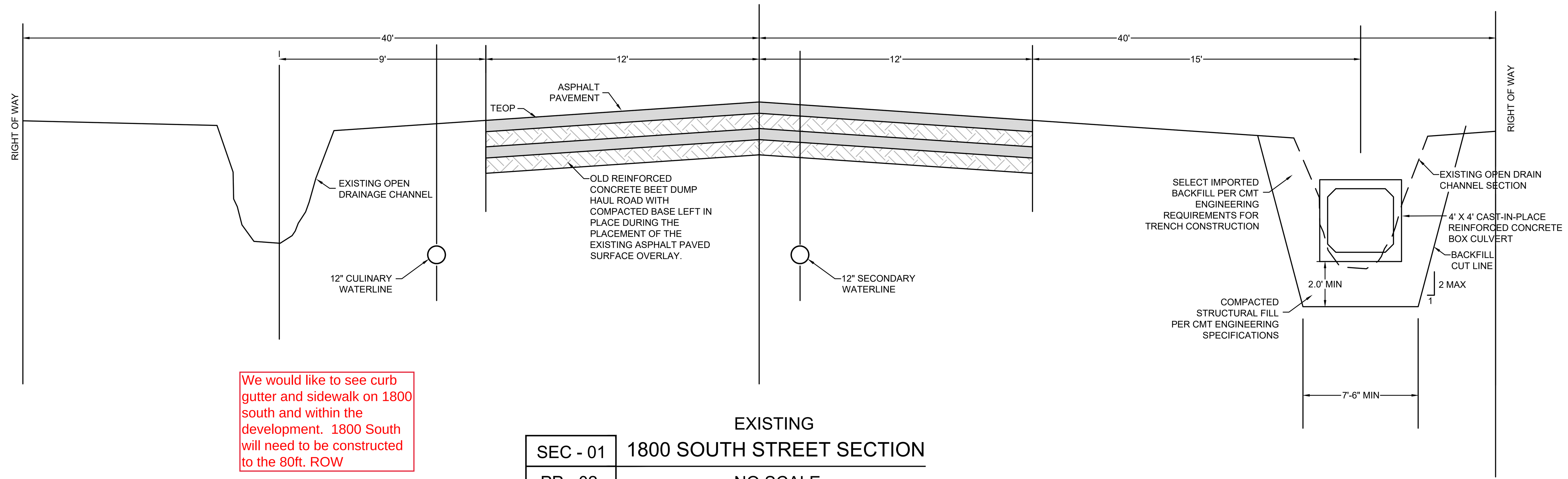
SITE SWPPP DETAILS

SHEET CD-03

Sewer trench detail showing Marking tape above

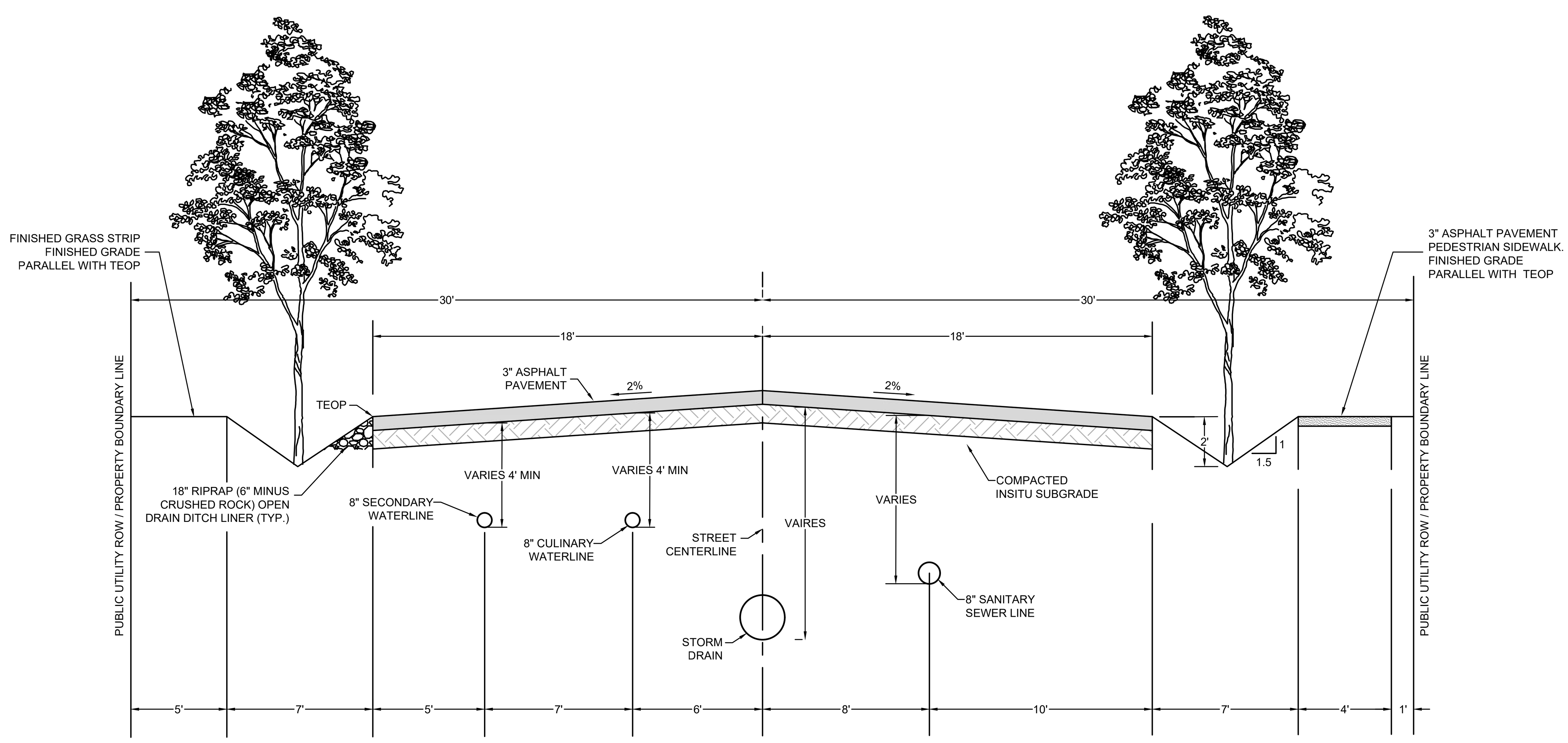


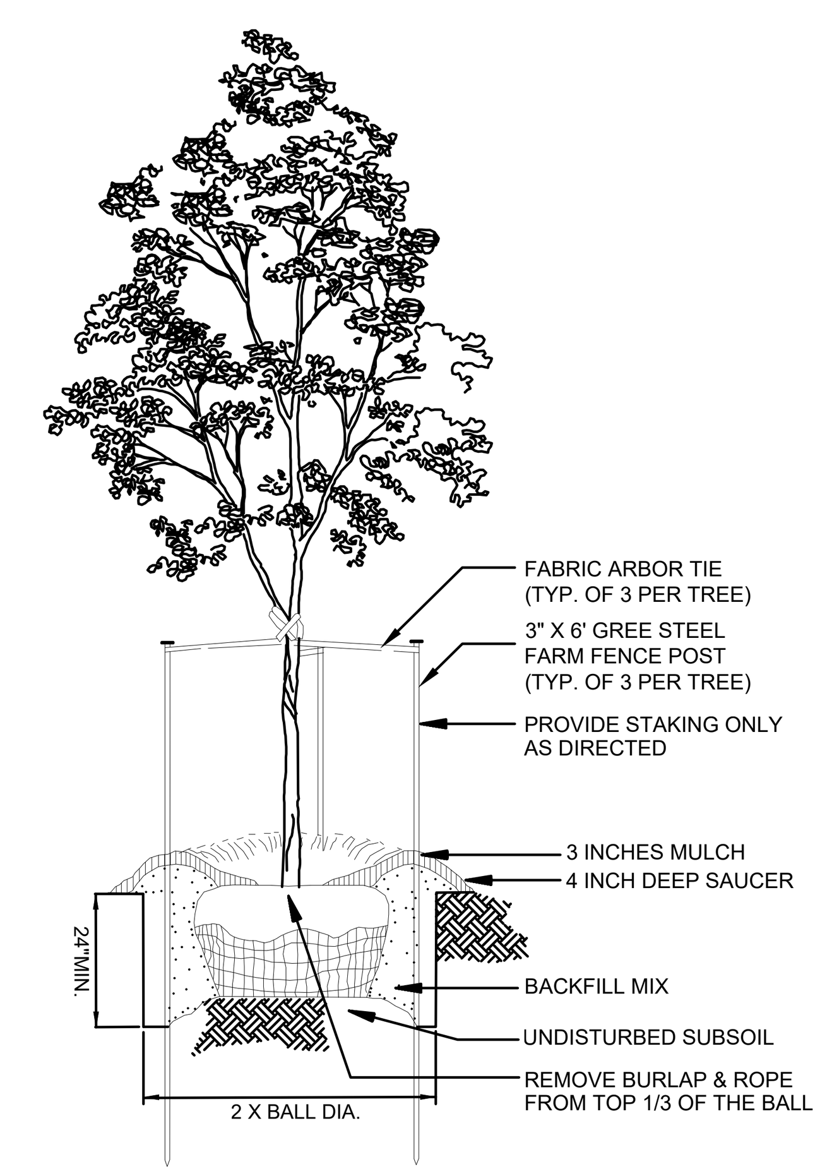
We would like to see curb gutter and sidewalk on 1800 south and within the development. 1800 South will need to be constructed to the 80ft. ROW

EXISTING

SEC - 01	1800 SOUTH STREET SECTION
PP - 02	NO SCALE

Sidewalk to be APWA Plan 235.1 Example B with ADA Truncated dome gray in color





We would like to see curb gutter and sidewalk. The street section should meet the county standard. 3" asphalt PG 64-34, 6" road base and 8" pit run 3" minus.

SUBDIVISION

SEC - 02	TYPICAL STREET SECTION
PP - 02	NO SCALE

SEC - 03	TREE PLANTING DETAIL
CD-04	NO SCALE

WEBER COUNTY ENGINEERING DEPARTMENT
FINAL SET APPROVED CONSTUCTION DRAWINGS

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REGISTERED PROFESSIONAL ENGINEER 168487 EDWIN H. CHRISTENSEN STATE OF UTAH

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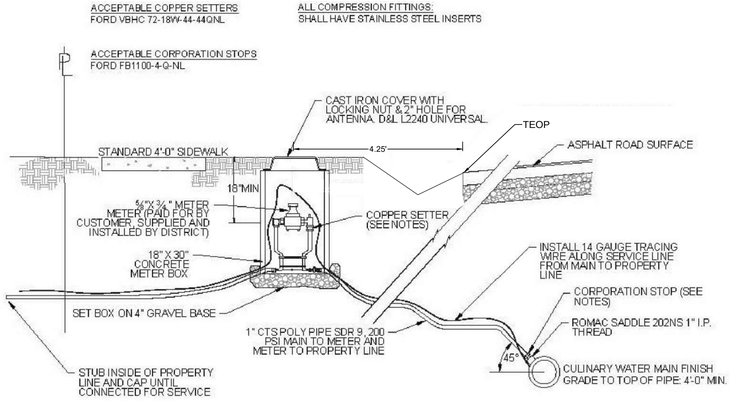
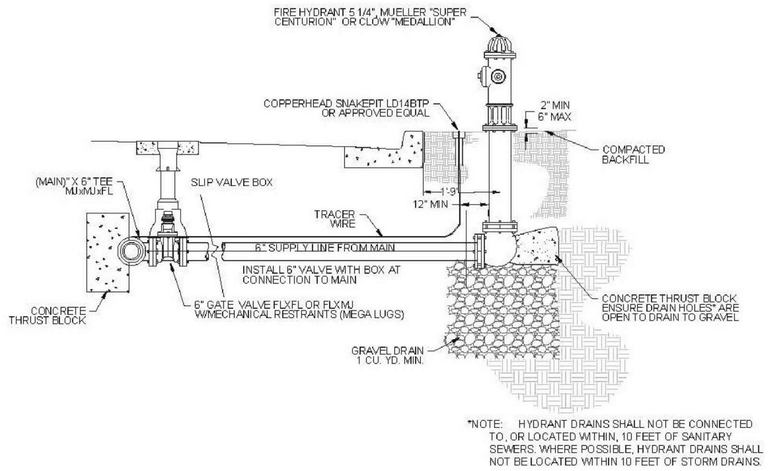
STREET SECTION DETAILS

SHEET CD-04

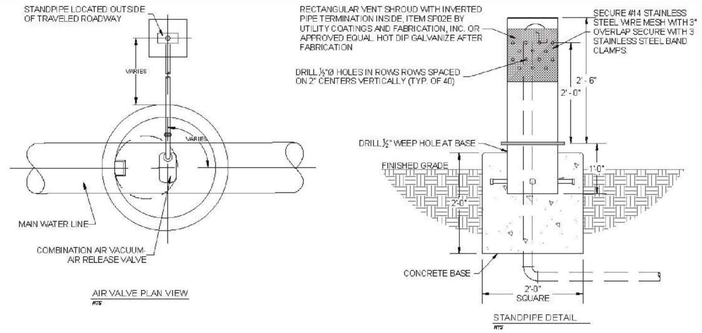


DET - 11	CULINARY WATER SERVICE CONNECTION
ALL SHEETS	NO SCALE

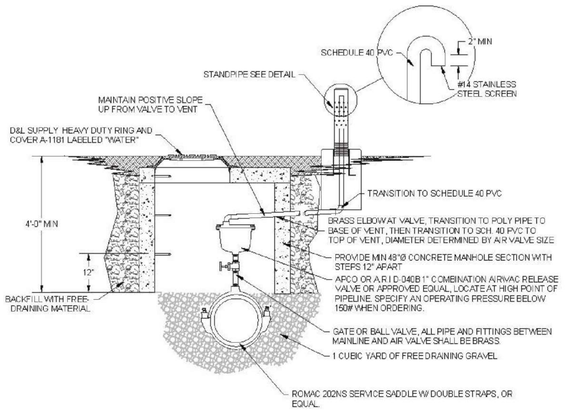


*NOTE: HYDRANT DRAINS SHALL NOT BE CONNECTED TO, OR LOCATED WITHIN, 10 FEET OF SANITARY SEWERS. WHERE POSSIBLE, HYDRANT DRAINS SHALL NOT BE LOCATED WITHIN 10 FEET OF STORM DRAINS.

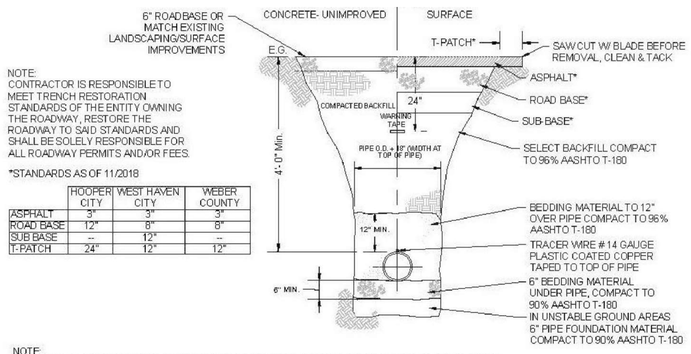
DET - 12	STANDARD FIRE HYDRANT ASSEMBLY
ALL SHEETS	NO SCALE



NOTES:
1. LOCATE STANDPIPE WELL OUTSIDE TRAVELED ROADWAY OR, AS DIRECTED BY THE ENGINEER. INSTALL 4" STEEL PIPE FOR A1" AIR VACAIR RELEASE VALVE AND 6" STEEL PIPE FOR A 2" VALVE.



DET - 7	AIR & VACUUM VALVE VAULT
ALL SHEETS	NO SCALE



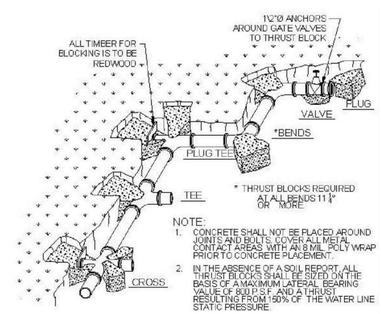
NOTE:
CONTRACTOR IS RESPONSIBLE TO MEET TRENCH RESTORATION STANDARDS OF THE ENTITY OWNING THE ROADWAY. RESTORE THE ROADWAY TO SAID STANDARDS AND SHALL BE SOLELY RESPONSIBLE FOR ALL ROADWAY PERMITS AND/OR FEES.

*STANDARDS AS OF 11/2018

	HOOPER CITY	WEST HAVEN CITY	WEBER COUNTY
ASPHALT	3"	3"	3"
ROAD BASE	12"	8"	8"
SUB BASE	--	12"	--
T-PATCH	24"	12"	12"

NOTE
- WATER & SEWER LINES SHALL BE INSTALLED A MINIMUM OF 10 HORIZONTAL FEET FROM EACH OTHER.
- WHERE A WATER MAIN AND A SEWER MAIN MUST CROSS, THE WATER MAIN SHALL BE AT LEAST 18" ABOVE THE SEWER MAIN.
- SEPARATION DISTANCES ARE TO BE MEASURED EDGE-TO-EDGE.
- WATER MAINS SHALL NOT BE INSTALLED IN THE SAME TRENCH WITH EITHER SEWER OR SECONDARY PIPES.
- IF THESE STANDARDS CANNOT BE MET AN EXCEPTION TO THE STANDARD MAY BE POSSIBLE. THE ENTITY SEEKING THE EXCEPTION SHALL INITIATE AND PURSUE A REQUEST FOR A SEPARATION EXCEPTION WITH THE STATE DIVISION OF DRINKING WATER, IN ACCORDANCE WITH R309-550-7 OF THE STATE OF UTAH ADMINISTRATIVE RULES.

DET - 10	PRESSURE WATER PIPE TRENCHING
ALL SHEETS	NO SCALE



NOTE:
1. CONCRETE SHALL NOT BE PLACED AROUND JOINTS AND BOLTS. COVER ALL METAL CONTACT AREAS WITH AN 8 MIL POLY WRAP PRIOR TO CONCRETE PLACEMENT.
2. IN THE ABSENCE OF A SOIL REPORT, ALL THRUST BLOCKS SHALL BE SIZED ON THE BASIS OF A MAXIMUM LATERAL BEARING VALUE OF 800 P.S.F. AND A THRUST RESULTING FROM 150% OF THE WATER LINE STATIC PRESSURE.

TABLE OF BEARING AREAS IN SQ. FT FOR CONCRETE THRUST BLOCKING

SIZE	BENDS				TEES*	GATE VALVES	DEAD ENDS	CROSSW/ BRANCH PLUGGED	CROSSW/ 2 BRAN. PLUGGED
	90°	45°	22 ½°	11 ¼°					
3	1.0	0.0	0.3	0	0.7	0.3	0.7	0.7	0.7
4	1.8	1.0	0.9	0	1.3	0.5	1.3	1.3	1.3
6	4.0	2.2	1.1	0	2.5	0.7	2.5	2.5	2.5
8	7.1	3.8	2.0	1.0	5.0	2.4	5.0	5.0	5.0
10	11.1	6.0	3.0	1.5	7.8	4.5	7.8	7.8	7.8
12	16.0	8.6	4.4	2.2	11.3	7.5	11.3	11.3	11.3
14	21.7	11.8	6.0	3.0	15.4	11.0	15.4	15.4	15.4
15	25.0	13.5	7.0	3.5	17.6		17.6	17.6	17.6
16	28.4	15.3	8.0	4.0	20.0		20.0	20.0	20.0
18	36.0	19.4	10.0	5.0	25.4		25.4	25.4	25.4
20	44.2	24.0	12.2	6.1	31.4		31.4	31.4	31.4
21	49.0	26.5	13.5	6.8	34.8		34.6	34.6	34.6
22	54.0	29.0	14.8	7.4	38.0		38.0	38.0	38.0
24	64.0	34.5	17.7	8.8	45.0		45.0	45.0	45.0
30	100.0	54.0	27.6	13.8	71.0		71.0	71.0	71.0
36	144.0	78.0	40.0	20.0	102.0		102.0	102.0	102.0

*SIDE & BRANCH SIZE
FOR 100 P.S.I. INTERNAL STATIC PRESSURE AND 1000 LBS PER SQ. FT. SOIL BEARING CAPACITY.

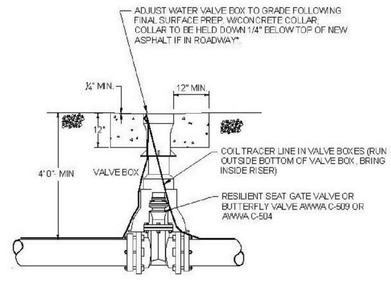
"ALL VALVES, TEES, CROSSES AND BENDS SHALL ALSO BE FITTED WITH MECHANICAL RESTRAINTS, SUCH AS MEGA LUG OR ROMA GRIP WITH FLUOROPOLYMER COATED BOLTS AND NUTS.

AREAS GIVEN IN TABLE ARE BASED UPON AN INTERNAL STATIC PRESSURE OF 100 P.S.I AND A SOIL BEARING CAPACITY OF 1000 LBS PER SQ. FT. BEARING AREAS FOR ANY PRESSURE AND SOIL BEARING CAPACITY MAY BE OBTAINED BY MULTIPLYING THE TABULATED VALUES BY A CORRECTION FACTOR "F".

F= ACTUAL SPECIFIED TEST PRESSURE IN HUNDREDS OF LBS/SQ. IN. / ACTUAL SOIL BEARING CAPACITY IN THOUSANDS OF LBS.

EXAMPLE: TO FIND BEARING AREA FOR 8"-90° BEND WITH A STATIC INTERNAL PRESSURE OF 150 P.S.I AND WITH A SOIL BEARING CAPACITY OF 3000 LBS. PER SQ. FT.
F=1.5 / 3=0.5 TABULATED VALUE = 7.1 SQ. FT.
0.5 X 7.1=3.56 ~ 4 SQ. FT. (~OR 2FT. LONG BY 2FT. HIGH.)

DET - 8	THRUST BLOCKING
ALL SHEETS	NO SCALE



NOTE: VALVE BOX, RISER AND LID MUST COME FROM THE SAME MFR., BE INTENDED FOR USE TOGETHER AND SHALL BE WITHIN PUBLISHED DIMENSION TOLERANCES.
IF LOCATED IN ROADWAY W/ SPEED LIMIT OF 40 MPH OR GREATER, LID SHALL BE HEAVY AND EXTRA DEEP.

DET - 13	PRESSURE WATER PIPE ISOLATION VALVE
ALL SHEETS	NO SCALE

WEBER COUNTY ENGINEERING DEPARTMENT
FINAL SET APPROVED CONSTUCTION DRAWINGS

SITE BOUNDARY & TOPOGRAPHIC SURVEY
Boundary Consultants
Professional Land Surveyors
5554 West 2425 North, Hooper, UT 84315 (801) 729-1569
David E. Hawkes, PLS Utah No. 356548

DATE	SURVEY / SUBMITTAL
1/03/2020	Site Boundary and Topographic Survey
3/4/2021	Weber County Surveyor's Record Plat

REGISTERED PROFESSIONAL ENGINEER
ERIC H. CHRISTENSEN
STATE OF UTAH

Terrex Engineering & Construction, LLC
Land Development - Public Works - Water & Wastewater Utilities
P.O. Box 13059 Ogden, UT 84412 (801) 458-9647

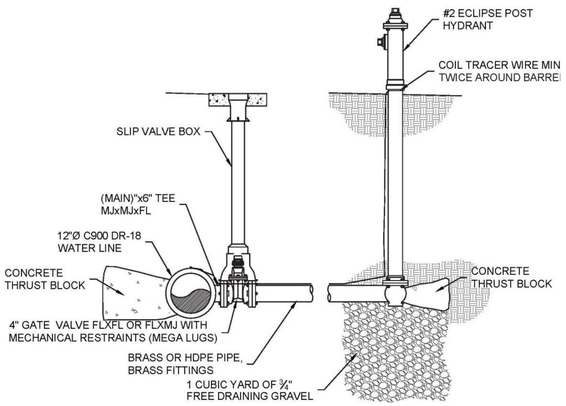
DATE	REVIEWED	SUBMITTAL
7/25/2020	EH Christensen, SE, PE	50% TEC Review Submittal
9/30/2020	EH Christensen, SE, PE	90% Weber County Engineering Submittal
1/20/2021	EH Christensen, SE, PE	100% Weber County Engineering Submittal
4/30/2021	EH Christensen, SE, PE	Construction Ready Submittal

Stagecoach Estates
40.0 Acre - 56 Lot Residential Development

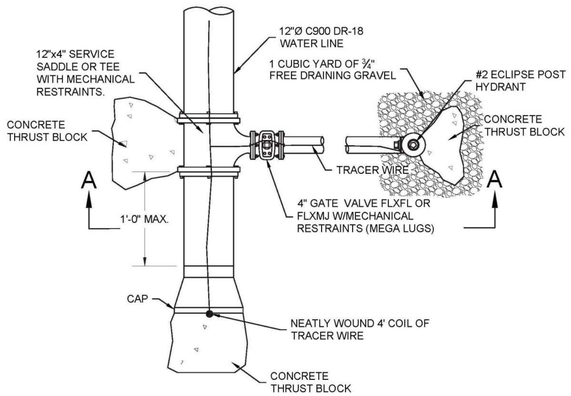
DEVELOPER: Lync Construction
GENERAL ADDRESS: 1800 South 3800 West, West Weber, Utah
LAND SURVEYOR: Boundary Consultants / David E. Hawkes, PLS
Technical Review & Construction Approval: Weber County Engineering

TAYLOR WEST WEBER WATER DISTRICT
PRESSURE WATER-LINE DETAILS

SHEET CD-05

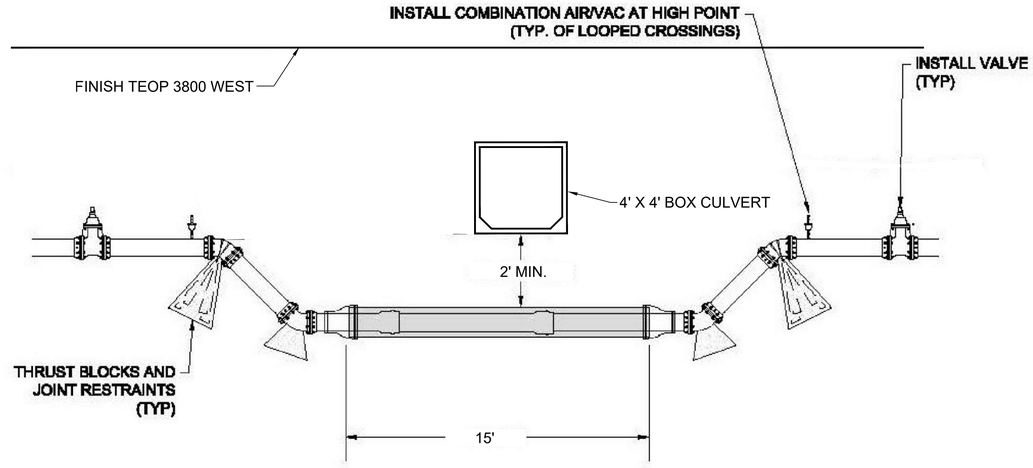


LATERAL SECTION A-A



LATERAL PLAN VIEW

DET - 14	BLOW-OFF VALVE
ALL SHEETS	NO SCALE

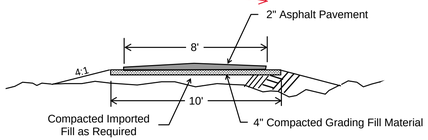


NOTE:

1. **CASINGS REQUIRE CENTRALIZING SPACERS AND END SEALS W/ S.S. BAND CLAMPS SUBMITTED TO INSPECTOR FOR APPROVAL PRIOR TO INSTALLATION.**
2. **PVC PIPE REQUIRES SELF- RESTRAINING GASKETS ON PIPE JOINTS INSIDE OF CASING AND ONE PIPE JOINT EACH SIDE OF CASING.**
3. **ISOLATION VALVE INSTALLATION IS REQUIRED ON EACH SIDE OF CASING.**
4. **COMBINATION AIR/VAC VALVE INSTALLATION IS REQUIRED ON EACH SIDE OF LOOPED CROSSINGS.**
5. **INSTALLATION OF A SAMPLING TAP OR OTHER ACCEPTABLE MEANS OF SAMPLING WILL BE REQUIRED TO ALLOW FOR REPRESENTATIVE WATER QUALITY TESTING ON THE UPSTREAM AND DOWNSTREAM SIDE OF THE CROSSING, IF THE DISTRICT INSPECTOR DETERMINES THAT ANOTHER MEANS OF SAMPLING DOES NOT EXIST NEAR THE GIVEN LOCATION.**
6. **CROSSINGS SHALL BE COMMISSIONED AS AN INTEGRAL PART OF THE SURROUNDING PIPE SYSTEM (FLUSH, DISINFECT, PRESSURE TEST).**

DET - 15	8" CULINARY WATER-LINE UTILITY CROSSING
ALL SHEETS	NO SCALE

If this is to go in this way 2" will not be enough in the areas that it is driven over.



S - 01	WALKING PATH SECTION
PP - 05	NO SCALE

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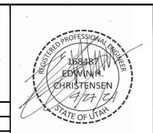

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PRESSURE WATER-LINE DETAILS

SHEET CD-06