
MEMORANDUM

To: Hopper Irrigation Company (HIC) – Board of Directors

From: Kris Nilsen – HIC Review Engineer

RE: BLUE ACRES SUBDIVISOIN PHASE 3 – CONSTRUCTION DRAWING REVIEW

Date: August 01, 2014

I have completed a review of the subject project and offer the following comments for your consideration. Additional information is requested and a further review will be required.

1. The fence along the east side of lot 5 should be made of six foot tall chain link with barb twist on the top and knuckled curl on the bottom. Currently I recommend following the UDOT standard for said described fence. A detail of said UDOT fence standard can be provided. The detail will show the concrete base and other details as recommended.
2. Proposed fence location shall be field verified by a Hic representative prior to installation. Location of fence should marked by the developer for HIC inspection.
3. The Following comments are to address the proposed driveway concrete slab protection over the existing HIC pipe.
 - a. The detail shows an existing 36" diameter pipe. It is my understanding form discussing with the ditch operators that it is an existing 24" diameter pipe. Recommend the developer field verify the size of the pipe. Any disturbed soil below the centerline of the existing pipe will require a standard pipe zone back fill. A detail of said pipe zone can be provided by HIC (once the proposed development submits a design that can be reviewed and approved by HIC). Typical pipe zone cross sections consist of gravel or an approved clean back fill to the center of the pipe. Above the center line of the pipe, in this case will likely match Weber County road standards (provide detail for review).
 - b. I recommend the design of the proposed driveway suspended concrete slab be changed to a flat slab consisting of the following.
 - i. Six inch thickness concrete (minimum 5,000 psi) with steel reinforcement as follows: (12" by 12" on center with half inch rebar).
 - ii. Span of the concrete with steel reinforcement should be ten feet each side of the existing HIC pipe from the center of said pipe.

- iii. Vertical clearance between the bottom of the new slab and the top of the bell rings on the existing pipe should be a minimum of four inches.
- iv. Recommend the detail for the drive way crossings include grade elevations for the purpose of reviewing finished grade connections to 2200 south and proposed new driveways. Elevated final grades above the existing HIC pipe compared with the final grade of the new drive way and the existing top grade of 2200 south may be of concern to HIC, due to the following.
 1. If the final grade elevations over the existing HIC pipe are elevated significantly above the final grade of the new drive way and 2200 south enough to cause consistent impact from vehicle traffic in or out of the drive way, the required protective concrete slab may require additional thickness of concrete and/or steel reinforcement.
4. The center line of the existing HIC pipe and/or Channel should be identified and shown on the construction drawing and plat, along 2200 South and the larger trapezoidal channel (running NE to SW If applicable) of the proposed development for the following purpose:
 - i. HIC needs a dedicated twelve foot wide (12') easement from the center of the existing pipe to the south approximately paralleling 2200 South Street, for the purpose of perpetual maintenance of said existing irrigation service. It is assumed, that needed access for maintenance to the existing irrigation pipe from the north side of the pipe will be available from the north side, via 2200 South Street. The needed dedicated HIC easement should not overlap or conflict with any proposed Public Utility Easement (P.U.E.)
5. Note to HIC (other options for driveway crossings): Replacing the existing pipe with elliptical pipe or a cast in place box culvert that provides for a lower finished grade elevation is an option. This would require a junction box at the two connection points to the existing round pipe. This option could provide a solution to grade issues if they are present. Also another option is to install a siphon if grade issues from driveways to 2200 south are an issue. In any case, a detailed design of proposed new improvements to the existing canal service must be submitted for review to HIC to provide a due diligence review to insure conveyance of service to existing clients continues at existing conditions.
6. Recommend the center line of the existing HIC pipe should be identified and shown on the construction drawing, including the alignment of said pipe along the frontage of the proposed phase 3, 4 and the existing phases 1 and 2. For the purpose of being able to review a comprehensive design review of the existing irrigation system along 2200 South street.

MEMORANDUM

To: Hopper Irrigation Company (HIC) – Board of Directors

From: Kris Nilsen – HIC Review Engineer

RE: BLUE ACRES SUBDIVISOIN PHASE 4 – CONSTRUCTION DRAWING REVIEW

Date: August 01, 2014

I have completed a review of the subject project and offer the following comments for your consideration. Additional information is requested and a further review will be required.

1. Fencing along the north side of the existing HIC canal should be addressed at this time as to when the fence will be installed. The southeast corner of lot 9 is approximately 15 feet from the shown canal easement. The south east corner at the north end of the road running east to west is approximately 40 feet from the canal easement.
 - a. Are the lots going to be fenced as part of the home construction prior to or very close to occupancy? If not, I recommend fencing be completed now or with a future phase development, if such future phase development is to be approved within 3 months.

2. The Following comments are to address the proposed driveway and/or street concrete slab protection over the existing HIC pipe.
 - a. Recommend the developer field verify the size of the pipe.

 - b. I recommend the protective concrete design be changed to a flat slab consisting of the following.
 - i. Six inch thickness with steel reinforcement (12" by 12" on center with half inch rebar).

 - ii. Span of the slap should be ten feet each side of existing the pipe from the center of said pipe.

 - iii. Vertical clearance between the bottom of the new slab and the top of the bell rings on the existing pipe should be a minimum of four inches.

 - iv. Recommend the detail for the drive way and/ or street crossing include grade elevations for the purpose of reviewing finished grade connections to 2200 south. Elevated final grades above the existing HIC pipe compared with the

final grade of the new drive way (and/or street) crossing and the existing top grade of 2200 south may be of concern to HIC, due to the following:

1. If the final grade elevations over the existing HIC pipe are elevated significant above the connected final grades enough to cause consistent impact from vehicle traffic in or out of the drive way and/ or streets the required protective concrete slab may require additional thickness of concrete and/or steel reinforcement. Also may require street final grade design to be adapt for the final grade above the existing HIC service
3. Note to HIC (other options for driveway and/ or street crossings): Replacing the existing pipe with elliptical pipe or a cast in place box culvert that provides for a lower finished grade elevation is an option. This would require a junction box at the two connection points to the existing round pipe. This option could provide a solution to grade issues if they are present. Also another option is to install a siphon if grade issues from driveways or streets to 2200 south are an issue.

In any case, a detailed design of proposed new improvements to the existing canal service must be submitted for review to HIC to provide a due diligence review to insure conveyance of service to existing clients continues at existing conditions. If any alternative mentioned above is accepted by HIC, part of the design and inspection must include grouting the downstream junction box to reduce the risk of debris collection.

4. The center line of the existing HIC pipe and/or Channel should be identified and shown on the construction drawing and plat, along 2200 South and the larger trapezoidal channel (running NE to SW If applicable) of the proposed development for the following purpose:
 - i. The purpose is to be able to review a comprehensive design review of the existing irrigation system along 2200 South Street. HIC needs a dedicated twelve foot wide (12') easement from the center of the existing pipe to the south approximately paralleling 2200 South Street, for the purpose of perpetual maintenance of said existing irrigation service. It is assumed, that needed access for maintenance to the existing irrigation pipe from the north side of the pipe will be available from the north side, via 2200 South Street. The needed dedicated HIC easement should not overlap or conflict with any proposed Public Utility Easement (P.U.E.)