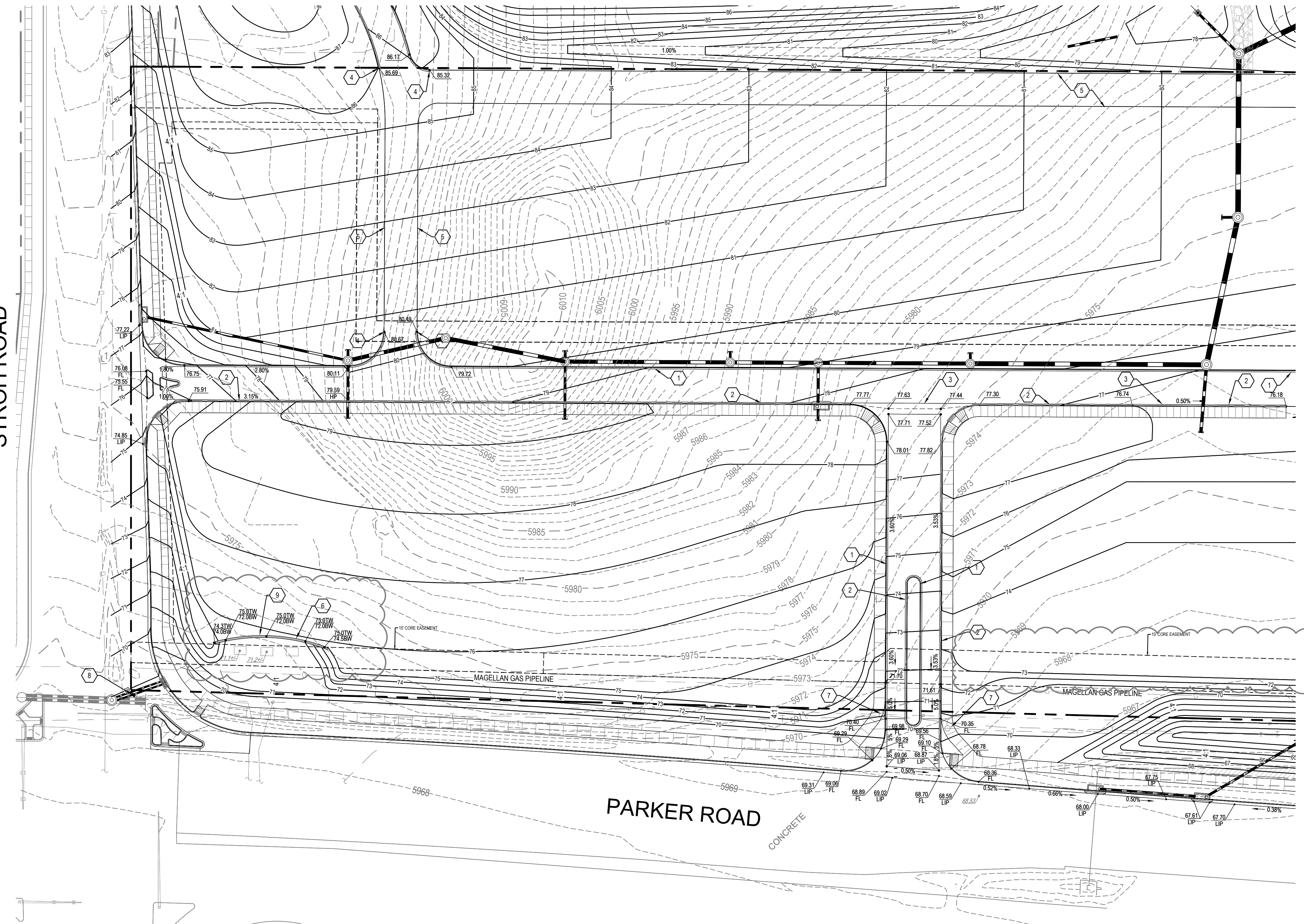


SEE SHEET C2.12

STROH ROAD

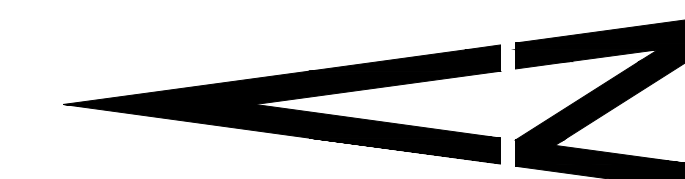


SEE SHEET C2.11

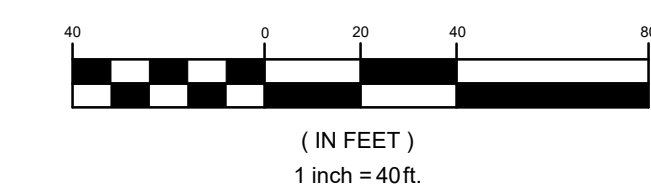
**CONSTRUCTION NOTES**

- 1 CONSTRUCT CONCRETE CURB AND GUTTER WITH SPILL PAN. RE: SHEET C5.90.
- 2 CONSTRUCT CONCRETE CURB AND GUTTER WITH CATCH PAN. RE: SHEET C5.90.
- 3 CONSTRUCT 8' WIDE CONCRETE CROSS PAN.
- 4 END CURB AND GUTTER.
- 5 EDGE OF ASPHALT. NO CURB.
- 6 CONSTRUCT MODULAR BLOCK RETAINING WALL. WALL AND SAFETY RAIL. DESIGN BUILD BY CONTRACTOR. KEYSTONE STRAIGHT FACE 8"x18" TAN BLOCK OR APPROVED EQUAL.
- 7 RE-SET UTILITY COVER / BOX TO PROPOSED GRADE.
- 8 RE-LOCATE UTILITY BOX TO LANDSCAPE AREA ADJACENT TO SIDEWALK.
- 9 CORE REQUIRES 10' FRONT ACCESS AND 3' SIDE ACCESS TO ALL EQUIPMENT. FIELD ADJUST WALL LOCATION IF REQUIRED.

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GRAPHIC SCALE



NOTE: ANY WALL OVER 4 FEET WILL REQUIRE A BUILDING PERMIT

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**BENCHMARK**

BENCHMARK: DOUGLAS COUNTY SURVEY CONTROL MONUMENT TT15A - 3" DIAMETER DOUGLAS COUNTY GIS ALUMINUM CAP AT THE NE CORNER OF STROH ROAD AND SOUTH PARKER ROAD (US HIGHWAY 63)  
 ELEVATION: 5970.79 FEET (NAVD 1988 DATUM)

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TOWN OF PARKER, DIRECTOR OF ENGINEERING

DATE

**GRADING PLAN NORTH**

PARKER POINTE  
 LOTS 1 THRU 15 AND TRACTS A AND B, PARKER POINTE FILING NO. 1  
 SOUTHEAST CORNER PARKER ROAD AND STROH ROAD  
 PARKER, COLORADO

design by: JWD  
 approved by: JWD  
 project no.: 2015-015

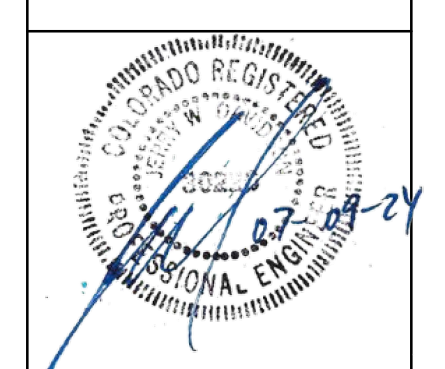
date: 10/01/17

SHEET

**C2.10**

PREPARED UNDER THE DIRECT SUPERVISION OF JERRY W. DAVIDSON, P.E. COLORADO REG # 30226 FOR AND ON BEHALF OF PERCEPTION DESIGN GROUP, INC.

NO.	DATE	DESCRIPTION	REVISIONS
03/11/24		FOURTH CDOT NTP SUBMITTAL	
01/31/24		THIRD CDOT NTP SUBMITTAL	
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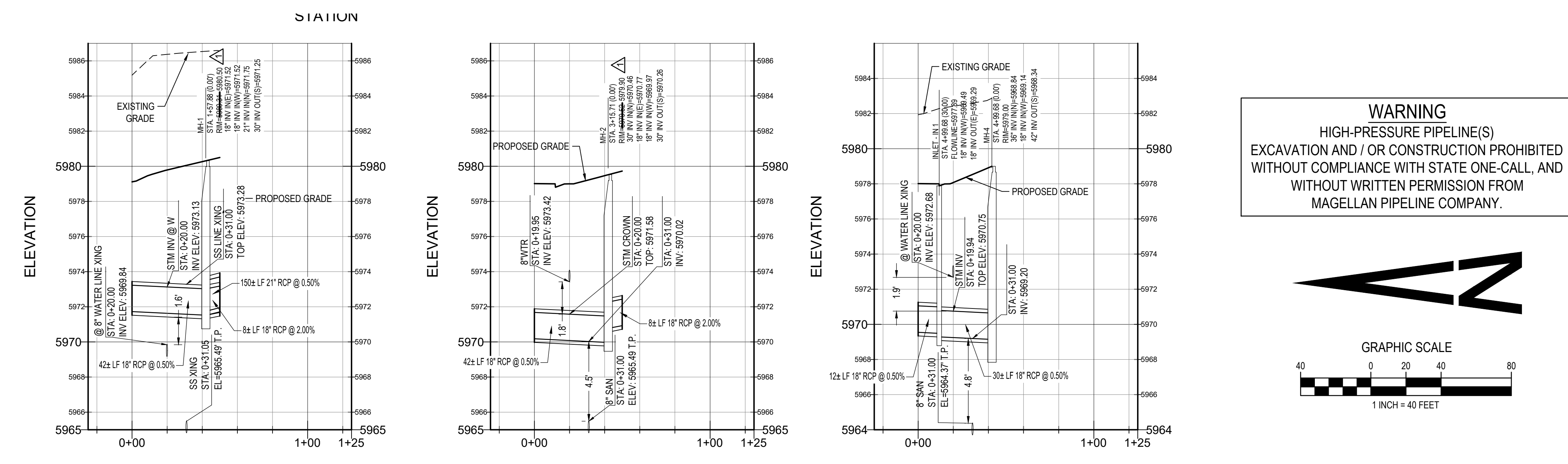
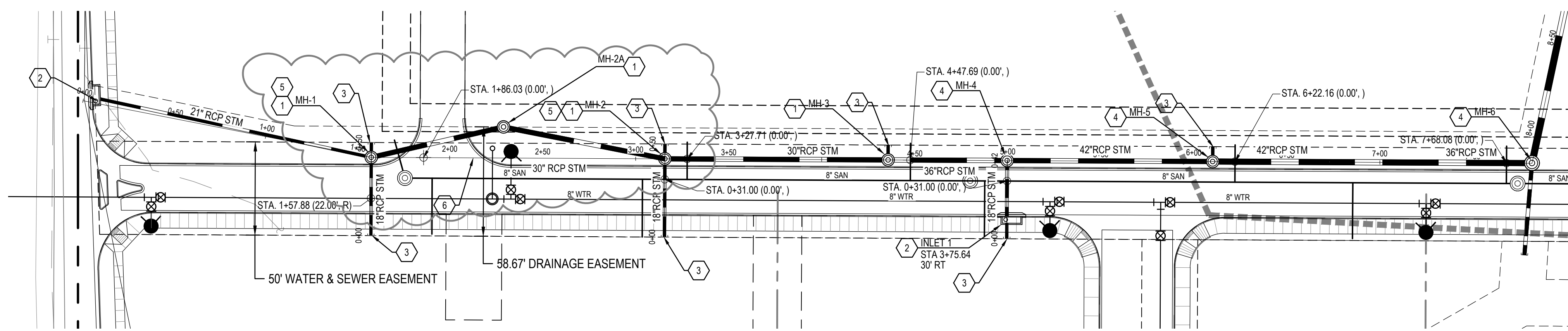




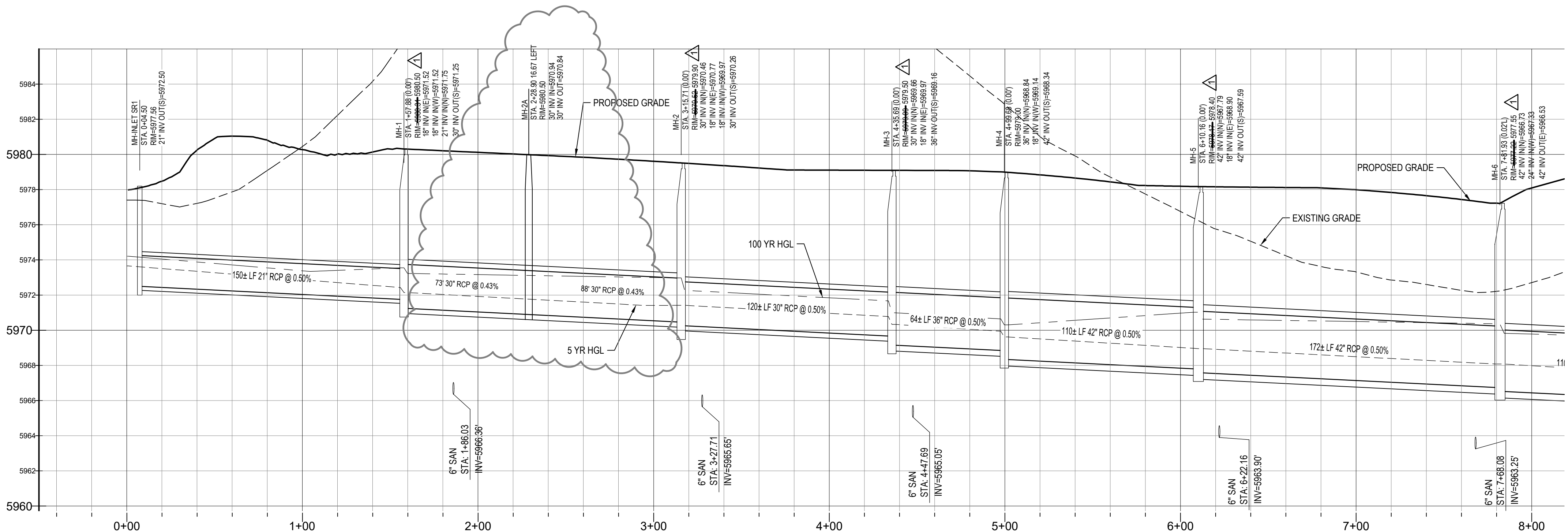
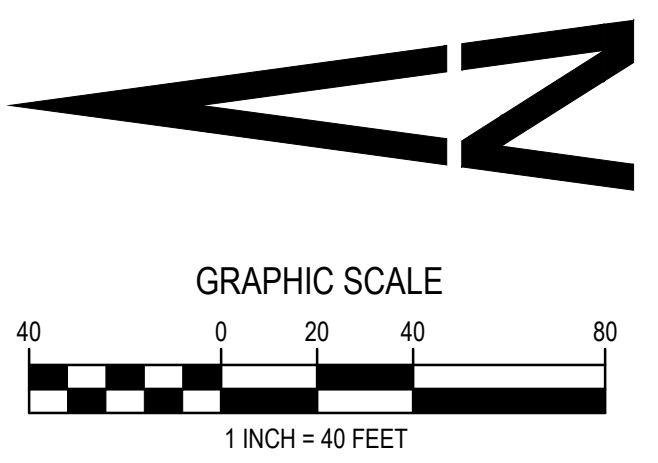
**CONSTRUCTION NOTES**

- 1 CONSTRUCT 5' DIAMETER MANHOLE. SEE SHEET C4.90.
- 2 CONSTRUCT 10" TYPE R INLET. SEE SHEET C4.91.
- 3 STUB 18" RCP FOR THE FUTURE CONNECTION. PLUG AND MARK FOR FUTURE CONNECTION.
- 4 CONSTRUCT 6' DIAMETER MANHOLE. SEE SHEET C4.90.
- 5 RE-FORM BASE TO ACCOMMODATE NEW PIPE ALIGNMENT.
- 6 REMOVE EX PIPE.

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**UTILITY NOTES**

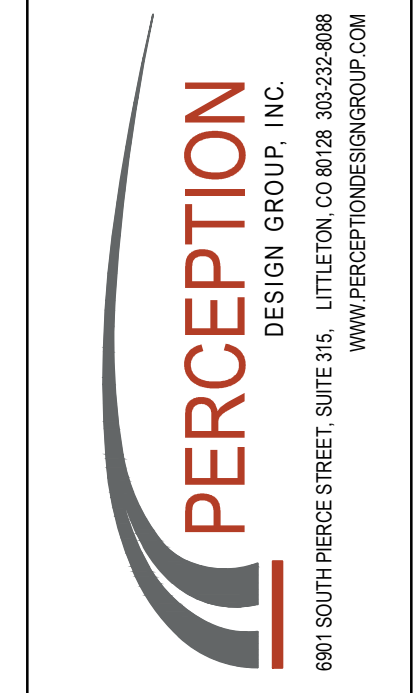
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12. ALL PIPE LENGTHS ARE MEASURED FROM CENTER OF MANHOLE AND FLOWLINE X CENTER OF INLETS.
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**BENCHMARK**

BENCHMARK: DOUGLAS COUNTY SURVEY CONTROL MONUMENT 11T5A - 3" DIAMETER DOUGLAS COUNTY GIS ALUMINUM CAP AT THE NE CORNER OF STROH ROAD AND SOUTH PARKER ROAD (US HIGHWAY 83)  
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PREPARED UNDER THE DIRECT SUPERVISION OF  
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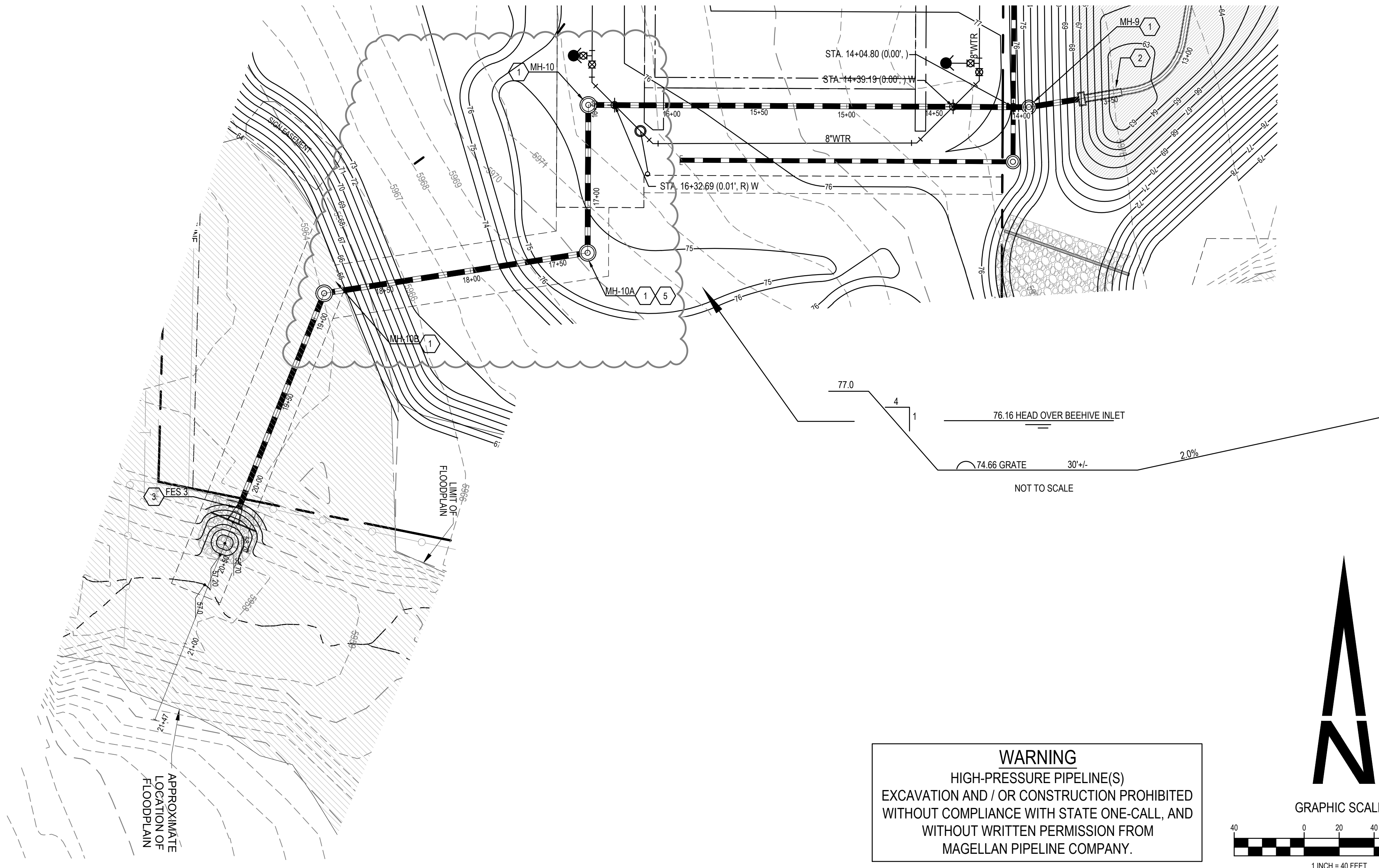
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**STORM SEWER PLAN AND PROFILE**  
  
 PARKER POINTE  
 LOTS 1 THRU 15 AND TRACTS A AND B, PARKER POINTE FILING NO. 1  
 SOUTHEAST CORNER PARKER ROAD AND STROH ROAD  
 PARKER, COLORADO

design by: JWD  
 approved by: JWD  
 project no.: 2015-015

date: 10/01/17

SHEET  
**C4.10**



**CONSTRUCTION NOTES**

- 1. CONSTRUCT 5' DIAMETER MANHOLE. SEE SHEET C4.90.
- 2. CONSTRUCT OUTLET STRUCTURE. SEE SHEET C4.15
- 3. INSTALL 36" FES WITH JOINT RESTRAINTS AND TOE WALL. SEE SHEET C4.91
- 4. INSTALL RIP RAP OUTLET PROTECTION. SEE SHEET C4.92
- 5. INSTALL GRATED LID ON MANHOLE. NOTE MANHOLE IS IN A SUMP CONDITION. SEE GRADING PLAN. NEEMAH R 4353 BEEHIVE GRATE.

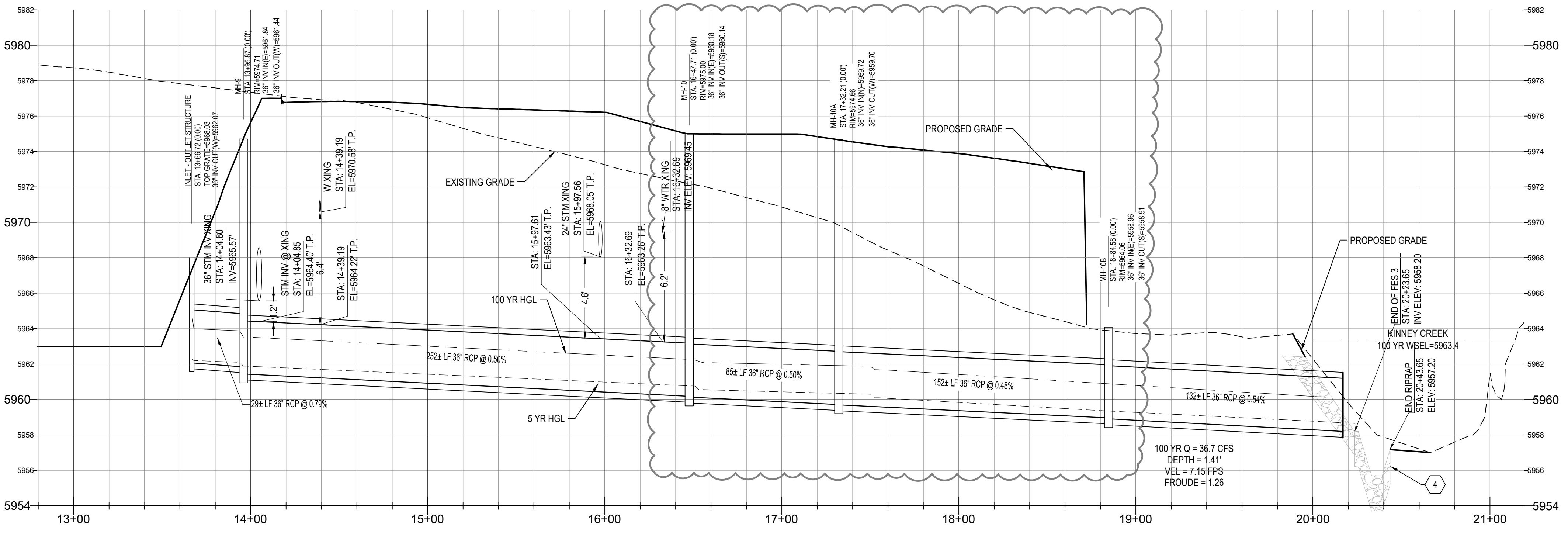
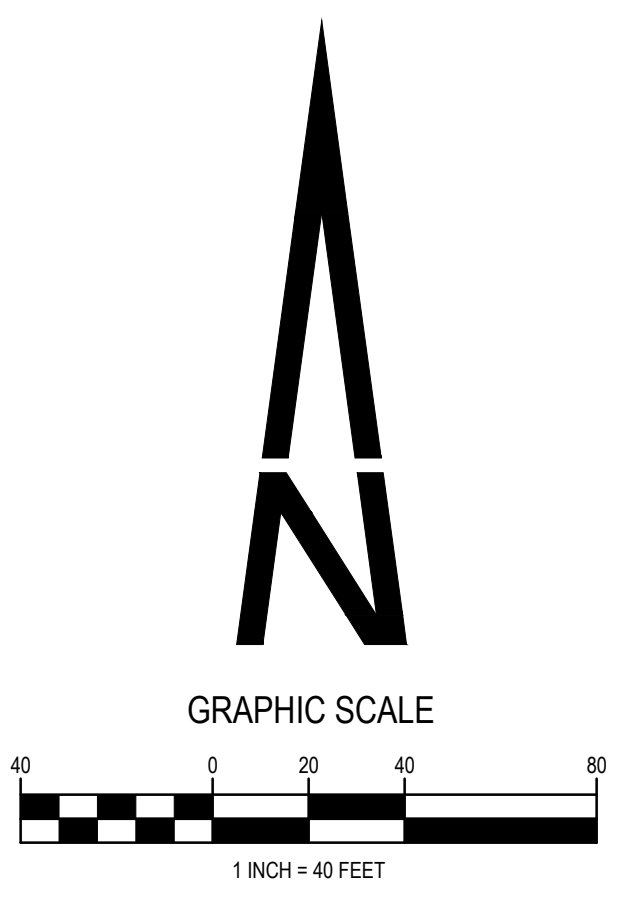
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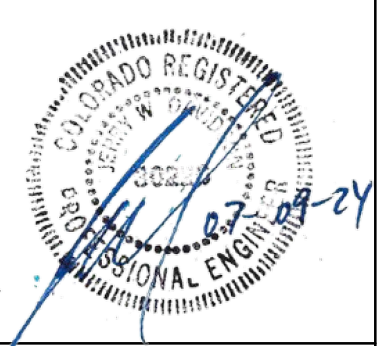
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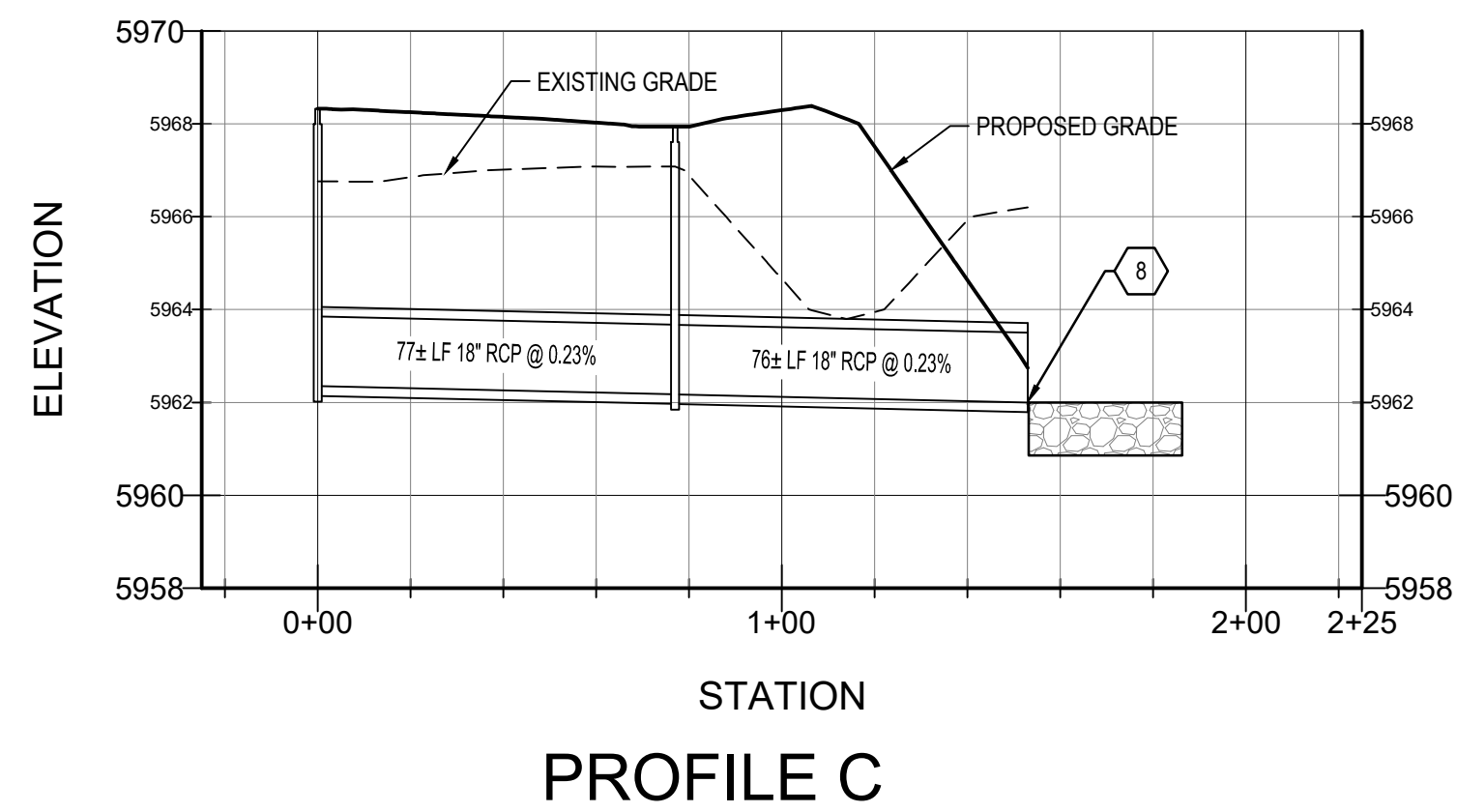
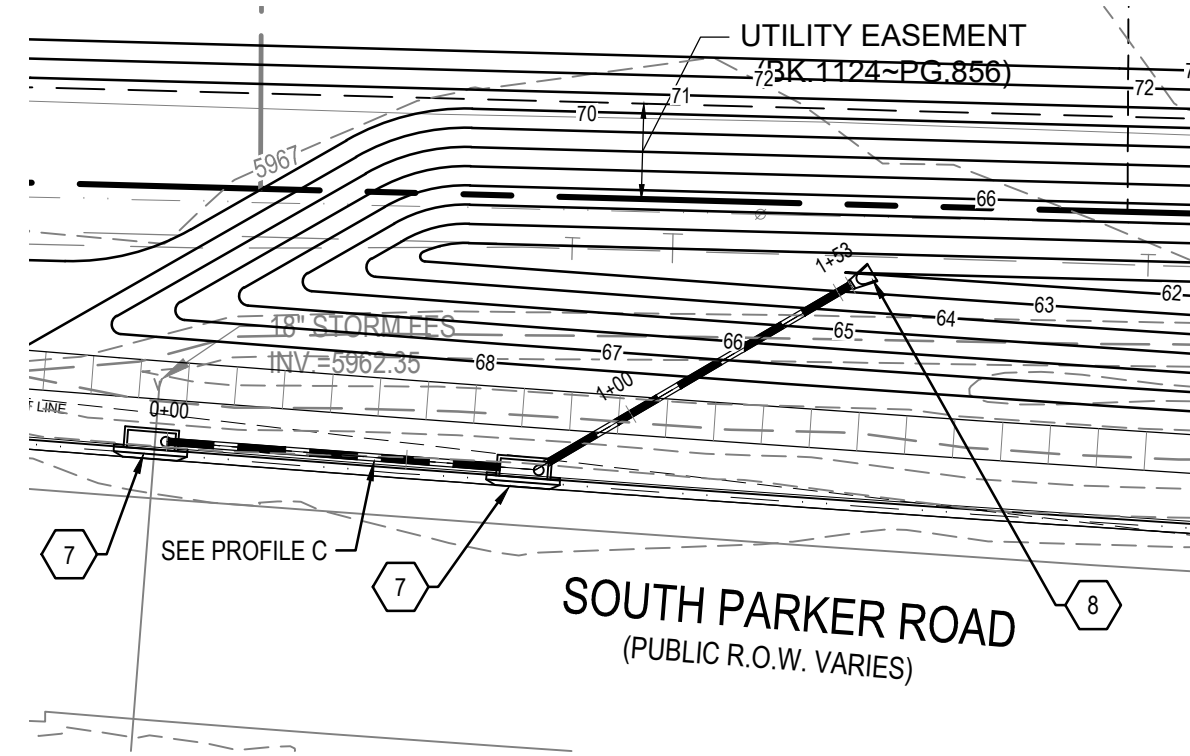
**STORM SEWER PLAN AND PROFILE**

PARKER POINTE  
 LOTS 1 THRU 15 AND TRACTS A AND B, PARKER POINTE FILING NO. 1  
 SOUTHEAST CORNER PARKER ROAD AND STROH ROAD  
 PARKER, COLORADO

design by: JWD  
 approved by: JWD  
 project no.: 2015-015

date: 10/01/17

SHEET  
**C4.12**



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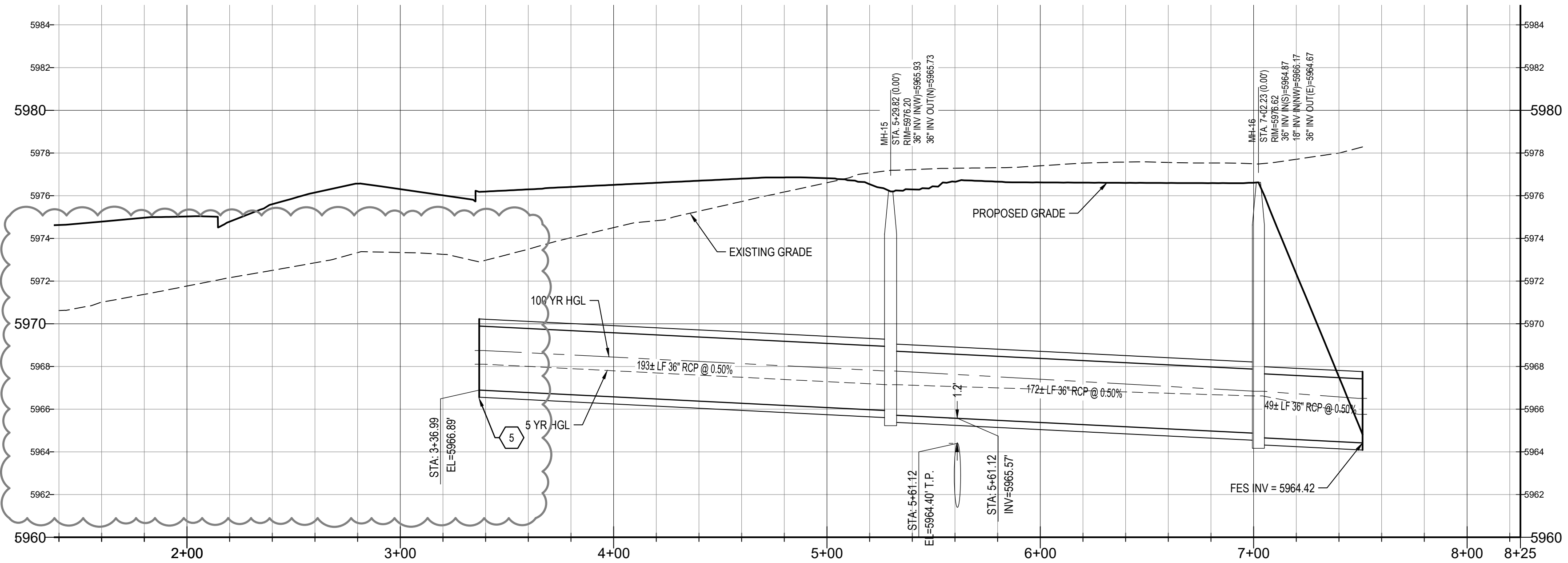
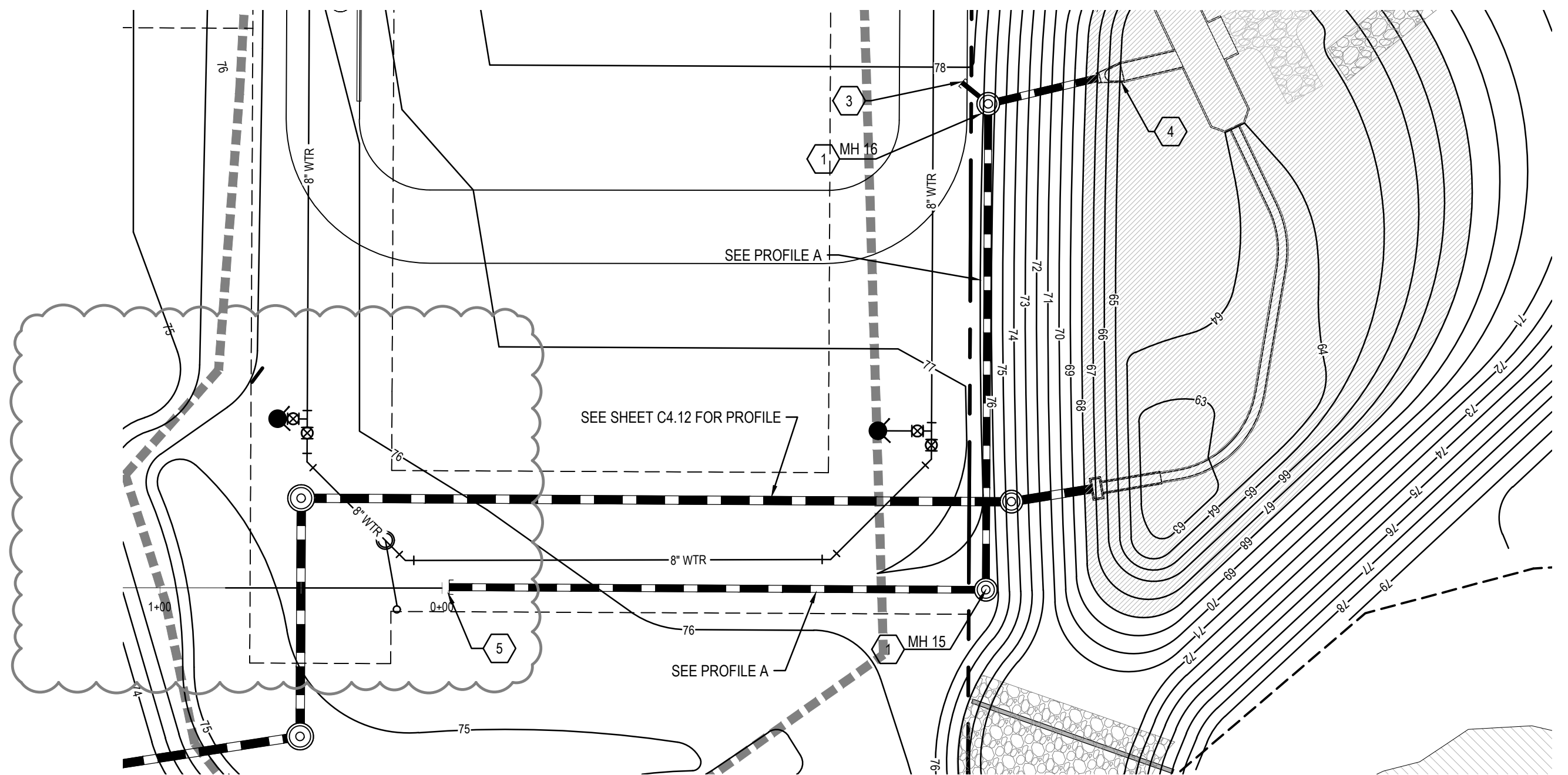
- ① CONSTRUCT 5' DIAMETER MANHOLE. SEE SHEET C4.90.
- ② CONSTRUCT 5' TYPE R INLET. SEE SHEET C4.91.
- ③ STUB 18" RCP 8LF @ 0.50%. SEE PROFILE FOR STARTING INVERT. PLUG AND MARK FOR FUTURE CONNECTION.
- ④ INSTALL 36" FES WITH JOINT RESTRAINTS.
- ⑤ PLUG AND MARK FOR FUTURE CONNECTION.
- ⑥ CONSTRUCT 6' DIAMETER MANHOLE WITH NEENAH R-3031-B COMBINATION INLET GRATE INSTEAD OF STANDARD RIM AND COVER.
- ⑦ CONSTRUCT 10' TYPE R INLET. SEE SHEET C4.91.
- ⑧ INSTALL 18" FES WITH CUTOFF WALL AND 4' X 10' LONG BURIED TYPE L RIPRAP OVER FILTER FABRIC.

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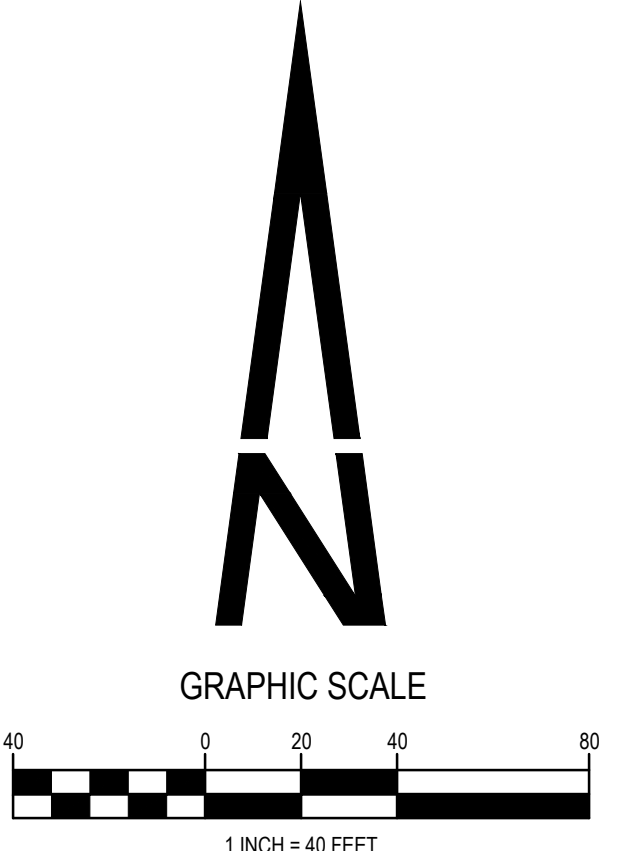
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11. THE CONTRACTOR SHALL HAVE AN APPROVED SET OF CONSTRUCTION PLANS ON SITE AT ALL TIMES. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR THE CONSTRUCTION, NOTIFYING AND SCHEDULING LOCAL AGENCIES INSPECTIONS.
12. ALL PIPE LENGTHS ARE MEASURED FROM CENTER OF MANHOLE AND FLOWLINE X CENTER OF INLETS.
13. ELEVATIONS ARE FINISHED GRADE ELEVATION UNLESS OTHER WISE NOTED.



**PROFILE A**

**BENCHMARK**

BENCHMARK: DOUGLAS COUNTY SURVEY CONTROL MONUMENT TT15A - 3" DIAMETER DOUGLAS COUNTY GIS ALUMINUM CAP AT THE NE CORNER OF STROH ROAD AND SOUTH PARKER ROAD (US HIGHWAY 83)  
ELEVATION: 5970.79 FEET (NAVD 1988 DATUM)



THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.

THIS REVIEW DOES NOT CONSTITUTE APPROVAL OF ANY PRIVATE ON-SITE IMPROVEMENTS WHICH MAY BE SHOWN. CONSTRUCTION CANNOT COMMENCE UNTIL ALL REQUIRED DRAINAGE/TRAFFIC REPORT(S), FINAL DEVELOPMENT PLAN(S), SPECIAL REVIEW(S), GRADING PERMIT, AND/OR OTHER PERMITS ARE COMPLETE, APPROVED AND ON FILE WITH THE TOWN OF PARKER

TOWN OF PARKER, DIRECTOR OF ENGINEERING



PREPARED UNDER THE DIRECT SUPERVISION OF JERRY W. DAVIDSON, P.E. COLORADO REG # 30226 FOR AND ON BEHALF OF PERCEPTION DESIGN GROUP, INC.

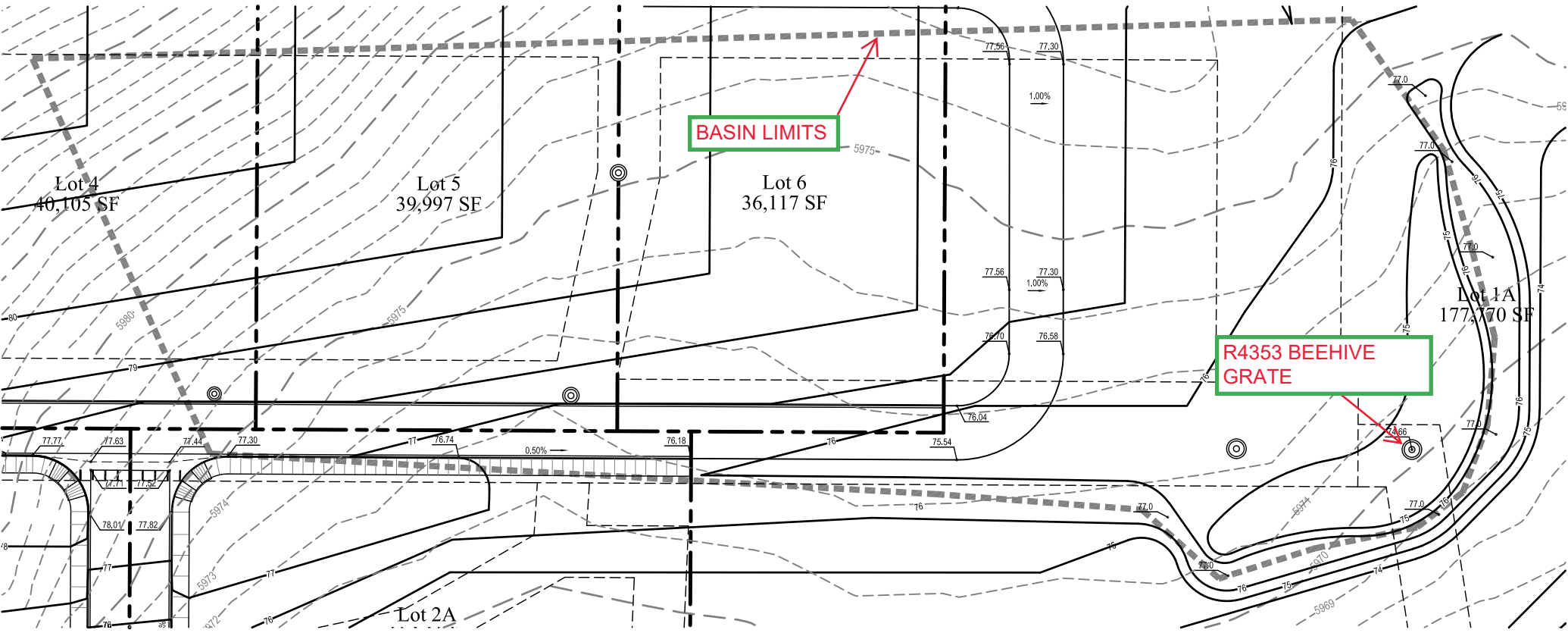
NO.	DATE	DESCRIPTION	REVISIONS
03/11/24	FOURTH CDOT NTP SUBMITTAL		
07/31/24	THIRD CDOT NTP SUBMITTAL		
07/15/24	2ND REPEAT SUBMITTAL		
08/01/23	SECOND CDOT NTP SUBMITTAL		
04/21/23	CDOT NTP SUBMITTAL / RE-PLAT SUBMITTAL		
04/15/22	RESUBMITTAL		
11/01/18	SIXTH SUBMITTAL		

**STORM SEWER PLAN AND PROFILE**

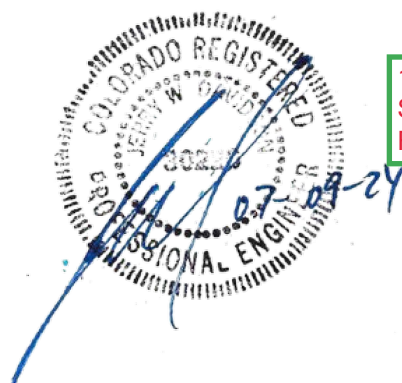
design by: JWD  
approved by: JWD  
project no.: 2015-015

date: 10/01/17

SHEET  
**C4.13**



A = 3.25 AC  
 I = 8.85 IN/HR  
 C = 0.36  
 Q100 = 10.3 CFS



100 YR WATER SURFACE 76.16  
 FREEBOARD 77.0

## ORIFICE FLOW

(Determines how much water flows through the grate)

### CAPACITY OF NEENAH GRATES FOR PONDING CONDITIONS

For flow through a grate under ponding conditions, orifice type flow occurs. If the net open area is used as the orifice area, the discharge can be computed using the orifice equation  $Q = CA\sqrt{2gh}$  where C has a value of 0.60, A = area in square feet, g = the constant value 32.2, and h = depth in feet of water over the grate.

The orifice equation is most accurate when large depths of ponding are encountered. At shallower depths, the equation loses its accuracy. The determining factor is the grate's free open area. The orifice equation remains accurate for grates of smaller area when depths are in the .4 to .3 foot range. Grates of larger free open area are not able to sustain ponding conditions at shallow depths, and therefore flow reverts to weir or one directional flow.

Since this equation contains three variables, two must be known to make a determination of the third. To facilitate rapid solution of the equation a nomograph (see page 45) is used. Please note the nomograph is limited to depths of .3 foot.

To use the nomograph, a line is drawn through the two known values on their respective axis. The third value will be obtained at the intersection of this line with the third axis. For example, if the area of a grate required to pass 6.7 cubic feet/second under a .5 feet head is desired, a line is projected from the .5 unit point on the right axis through the 6.7 unit point on the center axis. This line intersects the left axis at approximately 2.0 units indicating that a grate with a net open area of 2.0 square feet is required. Selection of this grate can be made by referring to the size table for the various Neenah grates.

It should be left to the designer to make any necessary reductions in the discharge due to trash accumulation or clogging.

For an example of the relationship between the weir and orifice equations and the expected flow through a grate under varying conditions see page 53.

#### Note on BEEHIVE grates:

To determine orifice flow capacities for beehive grates, the ponding depth is zero at the top of the grate. This is conservative, but it is usually better to underestimate than overestimate the grate capacity.

# Discharge vs Depth On Grate

