MEMORIAL CITY REDEVELOPMENT AUTHORITY

LUMPKIN ROAD ROADWAY RECONSTRUCTION AND DRAINAGE IMPROVEMENTS
APPROXIMATELY 3,500 L.F. OF STORM SEWER AND ROADWAY RECONSTRUCTION
FROM IH-10 TO NORTHBROOK DRIVE

WBS NO. N-T17000-0012-3

On Behalf of

TAX INCREMENT REINVESTMENT ZONE No. 17

SEPTEMBER 2014

VICINITY MAP
COUNCIL DISTRICT A
NTS

PROJECT LOCATION MAP
KEY MAP 4890 & 4492
GIMS 49580
NTS

100% SUBMITTAL

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER
TRAFFIC AND TRANSPORTATION
WASTEWATER
STORM WATER QUALITY
STORM WATER
FACILITIES
STREET & BRIDGE
PARK-FORESTRY DEPT

CITY ENGINEER
DATE

DIRECTOR OF PUBLIC WORKS AND ENGINEERING
DATE

SHEET NO 1 OF 225

TDLR: EABPRJ4813697
STORM WATER QUALITY PRE-CONSTRUCTION INSPECTION REQUIREMENTS

The property owner or contractor shall conduct the Harris County Storm Water Quality Permitting Section at 713-356-3000 for further information or to schedule a pre-construction inspection. Prior to commencing any clearing or construction activities on the property, obtain a Storm Water Permit from the Harris County Water Quality Management Plan (SWMP) Compliance Notes.

1. Land Clearing

Clearing and grubbing operations shall be performed in such a manner as to minimize disturbance to the soil and any erosion. Shovel work shall begin no earlier than 90 days prior to a construction site permit and the work shall be completed within 120 days of the issuance of the permit. Clearing and grubbing shall be performed by a licensed contractor who is certified by the Texas Commission on Environmental Quality (TCEQ).

2. Storm Water Management

Storm water management is required for all development projects. Storm water management systems shall be designed and constructed to prevent the discharge of pollutants into storm water systems. Storm water systems shall be maintained in good working order and any failures shall be reported immediately to the Storm Water Quality Permitting Section.

3. Floodplain Protection

No development shall be permitted within a designated floodplain without the required permits and approvals. Floodplain setbacks and other requirements shall be strictly adhered to.

4. Wetland Protection

No development shall be permitted within a designated wetland without the required permits and approvals. Wetland mitigation shall be performed in accordance with the Harris County Wetland Mitigation Plan.

5. Storm Water Monitoring

Storm water monitoring is required for all development projects. Storm water monitoring plans shall be submitted to the Storm Water Quality Permitting Section for approval and shall be performed on a regular basis.

6. Storm Water Discharge

Storm water discharges shall be permitted only through a approved discharge permit.

MEMORIAL CITY REDEVELOPMENT AUTHORITY

LUMPKIN ROAD

GENERAL CONSTRUCTION NOTES

SHEET 2 OF 2

FILE: WMG

DRAWING SCALE: 1"=20'-0"

NOT TO SCALE

SHEET: 4 OF 25
METRO

1. THE CONTRACTOR SHALL CONTACT METRO BUS OPERATIONS BY EMAIL AT LEAST SEVEN (7) WORKING DAYS IN ADVANCE WHEN WORK IS SCHEDULED NEAR A BUS STOP. CONTRACTOR MUST EMAIL ALL THREE REPRESENTATIVES LISTED BELOW:
  - info@meetrans.com
  - carl.taylor@meetrans.org
  - sclarke@meetrans.org

DETAILS

1. CITY OF HOUSTON STANDARD DETAILS FOR WATERSHED COLLECTION SYSTEMS, WATERLINES, STORM DRAINAGE, AND STREET PAVING ARE INCORPORATED IN PLANS BY REFERENCE AS TO SIZE OF UTILITIES. STANDARD DETAILS ARE AVAILABLE FOR DOWNLOAD AT THE FOLLOWING WEB ADDRESS:

2. DETAILS INCLUDED IN PLAN SET SUPERSSEDS RELATED GO STANDARD DETAILS.

WARMING OVERHEAD ELECTRICAL LINES

1. OVERHEAD LINES MAY BE ON THE PROPERTY. THE LOCATION OF OVERHEAD LINES HAS NOT BEEN SHOWN ON THESE PLANS AS THE LINES ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 73.307B, HEALTH & SAFETY CODE FINES ACTIVITIES THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY:
   - ANY ACTIVITY WHERE PERSONS OR THINGS MAY COME WITHIN SIXTY (60) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES;
   - OPERATING A CRANE, DEWICK, POWER SHovel, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN TEN (10) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES.

2. PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS, ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REVISED CALL CENTERPOINT ENERGY AT (713) 207-2222.

ATTN: TEXAS/SWMT FACILITIES

1. THE LOCATIONS OF ATTX TEXAS/SWMT FACILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.

2. THE CONTRACTOR SHALL CALL 1-800-344-8888 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED.

3. WHEN EXCAVATING WITHIN EIGHTEEN (18) FEET OF THE INDICATED LOCATION OF ATTX/SWMT FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING HAND TOOLS. IF MECHANICAL EQUIPMENT WILL BE REQUIRED TO BORING, THE CONTRACTOR SHALL EXPOSE THE ATTX/SWMT FACILITIES.

4. WHEN ATTX/SWMT FACILITIES ARE EXPOSED, THE CONTRACTOR WILL PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUCT OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BUILD THE POLE FOR SUPPORT.

5. THE PRESENCE OF ARMS OF ATTX/SWMT UNDERGROUND CONDUIT FACILITIES OR BURIED CABLE FACILITIES SHOWN ON THESE PLANS DOES NOT MEAN THAT THERE ARE NO DIRECT BURIED CABLES OR OTHER CABLES IN CONDUIT IN THE AREA.

6. PLEASE CONTACT THE ATTX TEXAS DAMAGE PREVENTION MANAGER ROODGELEE JR. AT 713/287-4552 OR EMAIL: HWM @ ATT.COM. IF THERE ARE QUESTIONS ABOUT BORING OR EXCAVATING NEAR OUR ATTX/SWMT FACILITIES.

MEGABIT ENERGY
KEYED NOTES

PROPOSED CONCRETE PIPE STUB WITH RING GRATE AS SHOWN ON STANDARD DETAIL 0268-00 - STORM SEWER RING GRATE FOR OPEN DITCH, AT A MINIMUM OF 0.5 FEET BELOW THE EXISTING DITCH FLOOR LINE. REALIGN DITCH AS DIRECTED BY THE CITY ENGINEER.

PROPOSED FLEXIBLE BASE AS SHOWN ON STANDARD DETAIL 0274-01 - HOT-MIX ASPHALT CONCRETE PAYMENT DETAILS.

PROPOSED SWEEP JOINT AND EXPOSE 15 INCHES OF REINFORCING STEEL. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOMELLS, SEE NOTE 9.

PROPOSED STANDARD CONCRETE CURB AND GUTTER AS SHOWN ON STANDARD DETAIL 0277-01 - CURB, CURB AND GUTTER AND HEADER DETAILS.

DOMELL ON 6-INCH CURB AFTER ASPHALT SURFACING IS IN PLACE, OR INTO EXISTING CONCRETE PAYMENT, AS APPLICABLE.

REMOVE EXISTING SIDEWALK.

PROPPOSED 3/4-INCH BOARD EXPANSION OR PRE-CUTTED NON-EXTENDING JOINT BETWEEN SIDEWALK AND CURB.

REMOVE A SUFFICIENT LENGTH OF CONCRETE PIPE, AS DETERMINED BY THE ENGINEER, AND CONNECT TO PROPOSED INLET WITH REINFORCED CONCRETE PIPE OF LIKE DIAMETER.

HORIZONTAL DOMELLS SHALL BE No. 6 BARS, 24 INCHES LONG, DRILLED AND EMBEDDED INTO THE CENTER OF THE EXISTING CURB AND WITH PO ROC OR EQUAL, DOMELLS SHALL BE 12 INCHES CENTER TO CENTER, UNLESS OTHERWISE SPECIFIED.

THE CONTRACTOR SHALL NOTIFY THE CITY TRAFFIC SIGNAL DIVISION, 10 WORKDAYS IN ADVANCE FOR RELLOCATION OF EXISTING TRAFFIC SIGNAL POLES.

ADJUST EXISTING INLET TO FIT NEW GRADE AND ALIGNMENT.

DECREASE CURB EXPOSURE FROM 6 INCHES TO 2 INCHES IN 1 FOOT.

DECREASE CURB EXPOSURE FROM 6 INCHES TO 2 INCHES IN 1 FOOT.

DECREASE CURB EXPOSURE FROM 6 INCHES TO 2 INCHES IN 1 FOOT.

PROPOSED REINFORCED CONCRETE MEDIAN/MEDIAN HOSE SHALL BE COLORED BLACK FOR CONCRETE ROADWAYS AND UNCOLORED FOR ASPHALTIC CONCRETE ROADWAYS.

RIP-RAIL SHALL BE PLACED ON SLOPES AND DITCHES AS DIRECTED BY THE ENGINEER.

CONVERT EXISTING INLET OR MANHOLE WITH INLET TOP TO MANHOLE.

REMOVE EXISTING CULVERT.

REMOVE AND REPLACE PIPE CURB AS DIRECTED BY THE ENGINEER.

EXISTING STRUCTURE TO BE REMOVED.

BREAK INTO DITCH OF EXISTING INLET OR REPLACED CONCRETE STORM SEWER, COST TO BE INCLUDED IN THE UNIT PRICE BID FOR STORM SEWER OR LEAD, AS APPROPRIATE.

REMOVE EXISTING INLET AND LEAD, PLUS AS ShOWN.

REMOVE EXISTING CONCRETE PAYMENT, CONCRETE BASE, AND CEMENT STABILIZED SHELL BASE COURSE WITH OR WITHOUT ASPHALT SURFACING.

PROPOSED ASPHALT TRANSITION.

REMOVE INLET AND EXTEND LEAD.

MEET EXISTING CURB OR CURB AND GUTTER.

PROPOSED WHEELCHAIR RAMP, AS SHOWN ON STANDARD DETAIL 0275-02 WHEELCHAIR RAMP DETAILS.

ADJUST EXISTING INLET AND MANHOLE FRAME AND COVER TO FIT NEW GRADE.

REMOVE CURB OR CURB AND GUTTER FOR GRADE AND ALIGNMENT.

ADJUST EXISTING WATER VALVE BOXES TO NEW PAYING GRADE. REPLACE MISSING OR DAMAGED VALVE BOXES AND COVERS.

PROPOSED RAMP DETAILS.

REPLACE TYPE B INLET OR TYPE 4 INLET.

PROPOSED PAVEMENT MARKINGS AS SHOWN ON STANDARD DETAIL 0276-01 - PAVEMENT MARKING DETAILS.

PROPOSED WHITE PLASTIC MARKER AS SHOWN ON TRAFFIC AND TRANSPORTATION DRAWING, STANDARD ELIMINATED WORD AND ARROW SYMBOL DESIGN DETAILS FOR PAVEMENT MARKINGS.

PROPOSED PLASTIC MARKER AS SHOWN ON TRAFFIC AND TRANSPORTATION DRAWING, STANDARD FOR LEFT TURN CHANNELIZATION.

PROPOSED STANDARD CONCRETE PAVING HEADER AS SHOWN ON STANDARD DETAIL 0277-01 - CURB, CURB AND GUTTER AND HEADER DETAILS.

REMOVE AND REPLACE DRIVEWAY TO ROW, EXCEPT WHERE NOTED OTHERWISE ON PLANS, AT WIDTHS AS SHOWN ON DETAILS.

REPLACE CONCRETE PAYMENT WITH OR WITHOUT ASPHALT OVERLAY WITH 6 INCH OR CONCRETE PAYMENT AND 6 INCH CURB TO THE SOUTHWEST CORNER OF THE BOX, OR ELSE AS DIRECTED.

REPLACE CONCRETE PAYMENT - CONCRETE PAYMENT OVER 5 YEARS IN AGE, JUNE 2001.

REPLACE ASPHALT PAYMENT OR CONCRETE PAYMENT WITH ASPHALT OPENLY TO THE LIMITS AS SHOWN ON STANDARD DETAIL 0291-03 STREET CUT OUT REPLACEMENT - ASPHALT PAYMENT FOR PAYMENT FOR PAVEMENT FOR ALL AGES, JUNE 2001.

REMOVE EXISTING PAVEMENT (ALL TYPES AND THICKNESSES).

DRIVEWAY EXTENDS BEYOND ROW AS SHOWN ON THE PLANS AND AS NOTED IN THE DRIVEWAY Tabulation Table.

TRANSITION PROPOSED SIDEWALK TO EXISTING SIDEWALK LEVEL WITH A MINIMUM SLOPE OF 1:20.

EXISTING STRUCTURE/UTILITY TO REMAIN.

CAST IN PLACE TOE WALL AS SHOWN IN THE CADD DRAWING. REFER TO TOE WALL DETAILS SHEET FOR MORE INFORMATION.

TIE PROPOSED CONCRETE PAYMENT TO EXISTING CONCRETE PAYMENT HEADER, IF EXISTING PAYMENT DOES NOT HAVE EXISTING REINFORCED STEEL, USE HORIZONTAL DOMELLS.

SAW CUT EXISTING PAVEMENT.

REMOVE AND DISPOSE OF EXISTING MANHOLE.

EXISTING POWER POLE TO BE REMOVED. (BY OTHERS; CENTERPOINT ENERGY).

REMOVE & RELocate EXISTING TRAFFIC SIGN.

ABANDON STORM SEWER MANHOLE, PLUG AND ABANDON LEAD.

ADJUST EXISTING MANHOLE FRAME AND COVER TO FIT NEW GRADE AND ALIGNMENT.

RELOCATE AND RECONNECT EXISTING WATER METER.

RELOCATE EXISTING ELECTRICAL BOX.

REPLACE CONCRETE PAVING FRAME AND COVER TO FIT NEW GRADE.

REMOVE AND REPLACE EXISTING LEAD.

REPLACE EXISTING WATER VALVE BOXES/METER BOXES TO NEW GRADE. REPLACE ALL MISPLACED OR DAMAGED WATER VALVE BOXES/METER BOXES AND COVERS.

REPLACE EXISTING WATER VALVE BOXES ON ABANDONED WATER LINES. REMOVE RISERS TO DRAIN OFF ALL PROPOSED PAVEMENT SURFACE.

FOLLOW PROCEEDURES IN SECTION 02516-CUT, PLUG AND ABANDONMENT OF WATER LINES.

PROPOSED PEDESTRIAN RAMPS WITH MAXIMUM 1:15 SLOPE FOR GRADE CHANGE AT DRIVEWAYS AND INTERSECTIONS. SEE STANDARD DETAILS.

REPLACE EXISTING GRAVEL PAVEMENT.

SEE LANDSCAPE/HARDSCAPE DETAILS SHEETS FOR MORE DETAILS.

PROPOSED TYPE 1 TxDOT PEDESTRIAN RAMPS. SEE STANDARD DETAIL 12-A FOR DETAILS.
PROPOSED LUMPKIN ALIGNMENT

BEGINNING CHAIN POINT: PR-HALN

Point 510

N 13,850,816.743 E 3,059,863.875 S 1 ST 00.00

Course from Point 510 to PC PR-HALN-1

N 2° 49' 33.88" W Dist 887.741

Curved Data

Curve PR-HALN-1

P.I. Station 11+82.48 N 13,851,897.909 E 3,059,810.504

Delta = 43° 45' 13.00" (RT)

Degree = 11° 48' 48.74"

Tangent = 194.741

Length = 370.368

Radius = 485.001

External = 37.637

Long Chord = 361.435

Mid. Ord. = 34.926

P.C. Station 9+87.74 N 13,851,703.405 E 3,059,820.105

P.T. Station 13+58.11 N 13,852,045.044 E 3,059,938.079

C.C. = N 13,851,727.318 E 3,060,304.516

Back = N 2° 49' 33.88" W

Ahead = N 40° 55' 39.12" E

Chord Bear = N 19° 03' 02.62" E

Course from PT PR-HALN-1 to PC PR-HALN-2

N 40° 55' 39.12" E Dist 320.060

Curved Data

Curve PR-HALN-2

P.I. Station 18+71.95 N 13,852,433.268 E 3,060,274.697

Delta = 43° 35' 27.00" (LT)

Degree = 11° 48' 48.74"

Tangent = 193.773

Length = 368.708

Radius = 485.001

External = 37.278

Long Chord = 359.893

Mid. Ord. = 34.618

P.C. Station 16+78.17 N 13,852,286.861 E 3,060,147.752

P.T. Station 20+46.88 N 13,852,626.842 E 3,060,265.805

C.C. = N 13,852,604.588 E 3,059,781.315

Back = N 40° 55' 39.12" E

Ahead = N 2° 37' 47.98" W

Chord Bear = N 19° 08' 55.62" E

Course from PT PR-HALN-2 to 511 N 2° 37' 47.98" W Dist 1,716.191

Point 511 N 13,854,341.225 E 3,060,167.057 S 37+63.07

END CURVE

END ARC

BL WESTVIEW DRIVE

BEGINNING CHAIN POINT: PR-HALN

Point 200

N 13,852,916.06 E 3,059,934.93 S 00.00

Course from 200 to 201 N 8° 08' 57.284" E Dist 317.28

Point 201

N 13,852,926.31 E 3,060,252.05 S 3+17.28

Course from 201 to 202 N 8° 08' 57.285" E Dist 262.74

Point 202 N 13,852,935.44 E 3,060,534.64 S 6+00.00

END CURVE

END ARC

BL WESTVIEW DRIVE

BEGINNING CHAIN POINT: PR-PD-HALN2

Point 1153 N 13,852,988.548 E 3,060,348.295 S 00.00

Course from 1153 to 1155 S 8° 16' 14.99" W Dist 414.921

Point 1154 N 13,852,978.604 E 3,059,934.493 S 4+14.92

Course from 1154 to 1155 S 8° 16' 14.99" W Dist 485.081

Point 1155 N 13,852,966.978 E 3,059,449.552 S 9+00.00

END CURVE

END ARC

BL BASIN CHANNEL

BEGINNING CHAIN POINT: PR-HALN

Point 400 N 13,853,037.904 E 3,060,246.923 S 00.00

Course from 400 to 401 N 87° 47' 38.21" W Dist 414.026

END CURVE

END ARC

BL BASIN CHANNEL

BEGINNING CHAIN POINT: PR-HALN

Point 401 N 13,853,237.934 E 3,059,456.042 S 8+57.68

END CURVE

END ARC

BL BASIN CHANNEL

BEGINNING CHAIN POINT: PR-HALN

Point 510 N 13,850,816.743 E 3,059,863.875 S 1+00.00

Course from 510 to PC PR-HALN-1 N 2° 49' 33.88" W Dist 887.741

END CURVE

END ARC

BL BASIN CHANNEL

BEGINNING CHAIN POINT: PR-HALN

Point 1153 N 13,852,988.548 E 3,060,348.295 S 0+00.00

Course from 1153 to 1155 S 8° 37' 36.12" W Dist 414.921

Point 1154 N 13,852,978.604 E 3,059,934.493 S 4+14.92

Course from 1154 to 1155 S 8° 37' 36.12" W Dist 485.081

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BL BASIN CHANNEL

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Course from 400 to 401 N 87° 47' 38.21" W Dist 414.026

END CURVE

END ARC
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### Cumulative Junction Discharge Computations

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### NOTES:

1. SEE PAVEMENT AND STORM SEWER SHEETS FOR MORE INFORMATION.
2. ALL STORM SEWER LENGTHS ARE BASED ON CENTER OF STRUCTURE (HYDRAULIC LENGTH) EXCEPT AT BOX CULVERT LATERALS WHERE INSIDE EDGE OF BOX CULVERT OR JUNCTION BOX IS LIMIT OF PIPE.
3. NOD FOR CONNECTION TO EXISTING STORM SEWERS WILL BE SUBSIDIARY TO STRUCTURE.
4. VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
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**NOTES:**
1. SEE PAVEMENT AND STORM SEWER SHEETS FOR MORE INFORMATION.
2. ALL STORM SEWER LENGTHS ARE BASED ON CENTER OF STRUCTURE HYDRAULIC LENGTH. EXCEPT AT BOX COVERT LATERALS WHERE INSIDE EDGE OF BOX COVERT OR JUNCTION BOX IS LIMIT OF PIPE.
3. COST FOR CONNECTION TO EXISTING STORM SEWER WILL BE SUBSIDIARY TO STRUCTURE.
4. VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
**SYSTEM AB (CONTINUED)**

### Conveyance Configuration Data

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### Conveyance Hydraulics Computations - Tollway - 72,670 (ft)

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### Notes
1. SEE PAVEMENT AND STORM SEWER SHEET FOR MORE INFORMATION.
2. ALL STORM SEWER LENGTHS ARE BASED ON CENTER OF STRUCTURE.
3. LENGTHS ARE AT CENTER OF PIPE.
4. INSIDE EDGE OF BOX CULVERT IS THE LIMIT OF PIPE.
5. COST FOR CONNECTION TO EXISTING DRAINAGE SEWER WILL BE SUBSIDIARY TO STRUCTURE.
6. VERIFICATION OF EXISTING UTILITIES PRIOR TO STARTING WORK IS RECOMMENDED.
7. TAILWATER FOR Y-2 ANALYSIS, SYSTEM AB, IS EQUIVALENT TO THE EXISTING TIP OF BOX CULVERT AT 73.15 FT.
8. REBUILT FRONTAGE ROAD, 72.67 FT.
9. THE 2-24 RCP OUTLET, RUN 15, 33" REINFORCED, RINGS 115, AND 36" POND OUTLET, RUN 119, 401 AND 402, ARE WORKED WITH EQUIVALENT PIPE SIZES TO MATCH PUMP LOSSES OF 20 WELDING PIPE IN SYSTEM AB.
10. RUN 113 REPRESENTS IMPACT OF DETENTION BASIN, PEAK FLOW EXISTS AT NODE NOSE REDUCED BY .199, 475, THEN 60% OF PEAK FLOW (166,650) REMAINS AT 444, WHICH IS ON THE 36" RCP OUTLET OF THE BASIN.
### Summary of Storm Drain Structure Quantities

**NOTE:** The conveyance length should be from upstream to downstream inside box.

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**Type of Inlet:**

- **Concrete:** 8.0, 6.0, 9, 9.0
- **Circular:** 1.29, 0.0, 1, 50.0
- **Concrete:** 8.0, 12.0, 6, 603.0
- **Circular:** 5.5, 5.0, 15, 171.6
- **Concrete:** 5.0, 9.0, 9, 171.6
- **Circular:** 3.5, 9.0, 1, 92.0
- **Concrete:** 0.0, 0.0, 1, 36.0
- **Circular:** 0.0, 0.0, 1, 25.1
- **Concrete:** 0.0, 0.0, 1, 25.1
- **Circular:** 0.0, 0.0, 1, 25.1
- **Concrete:** 0.0, 0.0, 1, 25.1

**Notes:**

1. See Pavement and Storm Sewer Sheets for More Information.
2. All Pipe Spools are Spool Based on Center of Structure
3. All Steel Composed of Pipe Spools and Concrete Spool Box Clever Laterals Where Inside Spool Box or Junction Box 15UM Pipe Spool Box
4. Capacity of Grade Inlet Exceeded by Inlet 5-4.40 ACCEPTABLE AS IT IS AN ON-GRADE INLET

### Notes

- [Insert notes or comments on specific data points or calculations here.]

---

**System AB (CONTINUED)**

Conveyance Hydraulic Computations, Tailwater: 72.670

**NOTES:**

- **Type of Inlet:** Circular
- **Type of Grade:** Inlet
- **Inlet Area:** Inside Pipe
- **Quantity:** 25.6

**Normal Termination of HOUSING:**

**Warning Messages for current reports:**

- Runoff Frequency: 2 Years
- Runoff Size: 10.0
- Runoff Capacity: 8.00
- Runoff Depth: 8.00
- Runoff Rate: 8.00
- Runoff Time: 8.00

**Notes:**

- See Pavement and Storm Sewer Sheets for More Information.
- All Pipe Spools are Spool Based on Center of Structure
- All Steel Composed of Pipe Spools and Concrete Spool Box Clever Laterals Where Inside Spool Box or Junction Box 15UM Pipe Spool Box
- Capacity of Grade Inlet Exceeded by Inlet 5-4.40 ACCEPTABLE AS IT IS AN ON-GRADE INLET
### STORM SYSTEM AB 100-YEAR INFOWORKS 2D MODEL HYDRAULIC DATA

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### NOTES
1. The tailwater used for the 100-yr analysis was 2-ft above the top of SPILLER 'A' at the head of LUMPKIN ROAD. Actual tailwaters from the 1-yr and 10-yr study were reviewed, however the relatively high elevations were not reasonable to evaluate hydraulic vs. con criteria. Therefore, the optimal tailwater of 2-ft above the pipe socket was used as per Condera's guidelines, November 2009.

2. Hydraulic data from INFOWORKS 2D model.

3. Allowable MPE based on the minimum of the lowest row elevation or maximum foring depths as per City IIB 2013.

4. Drainage systems D, E, and F shown on the overall drainage area maps do not drain directly to LUMPKIN SYSTEM however were modeled for evaluation under this storm. Overall tails and foring data for these is not included in this table for clarity.

5. See "LUMPKIN ROAD DRAINAGE IMPACT STUDY" May 2014 for a discussion of the hydraulic and hydraulic analysis.

6. Proposed water level increase, but still below allowable MPE.
MEMORIAL CITY REDEVELOPMENT AUTHORITY

LOCKWOOD, ANDREWS & NOVEMANN, INC.

W-T117000-0012-3

WESTVIEW BASIN CROSS SECTIONS

(1 of 2)

CITY OF HOUSTON

DEPARTMENT OF PUB. WORKS AND ENGINEERING

FILE NO.-

DRAWING SCALE:

SIGNATURE:

CITY OF HOUSTON

37 OF 201
Provide 2 additional #4 bars x 2'-0" x 2'-0" in each face of wall at top of corners of 2' x 2' equalizer.

2' x 2' equalizer or 30" dia. (min)

Note:
1. Space equalizers at proposed pipe junctions and at 100'-0" (max) intervals from these junction locations.
2. Provide equalizer locations with box culvert layouts for approval of engineer prior to construction.
3. Contractor may provide alternate equalizer for approval of engineer.
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<td>11 x</td>
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</tr>
</tbody>
</table>

**GENERAL NOTES:**

1. DESIGNED FOR USE AS LOADING AND MAXIMUM FALL HEIGHTS SHOWN.
2. ALL DIMENSIONS ARE IN FEET AND INCHES.
3. STEEL BARS SHOWN ARE FOR MAXIMUM OF 1 1/2" DIAMETERS.
4. CONCRETE TO BE SAME CLASS AS USED IN CULVERT.
5. ALL REINFORCING STEEL SHALL BE GRADE 60.

---

**CULVERT END CAP**

**CEC (FW)**

MEMORIAL CITY REDEVELOPMENT AUTHORITY

[Signature]

LUMPKIN ROAD
N-177000-0012-3
CULVERT END CAP
CEC (FW)

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

[Stamp]
TABLE OF DIMENSIONS & REINFORCING STEEL (Dimensions for the Structure End)

<table>
<thead>
<tr>
<th>Bar</th>
<th>Dia.</th>
<th>Length</th>
<th>Type</th>
<th>Grade</th>
<th>Tension</th>
<th>Cover</th>
<th>Reinforcement</th>
<th>No.</th>
<th>Dia.</th>
<th>Length</th>
<th>Type</th>
<th>Grade</th>
<th>Tension</th>
<th>Cover</th>
<th>Reinforcement</th>
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<td>2.0</td>
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WIND DIMENSION CALCULATIONS:

Formula:
\( \text{BARS} = \frac{\text{h} \times \text{w} \times \text{f}}{\text{g}} \times 1000 \)

For Brace overcuts:
\( \text{BARS} = \left( \frac{\text{h} \times \text{w} \times \text{f}}{\text{g}} \times 1000 \right) \times 1.5 \)

For Flange overcuts:
\( \text{BARS} = \left( \frac{\text{h} \times \text{w} \times \text{f}}{\text{g}} \times 1000 \right) \times 2 \)

ForconvertView:
\( \text{BARS} = \left( \frac{\text{h} \times \text{w} \times \text{f}}{\text{g}} \times 1000 \right) \times 1.5 \)

Notes:
- All values are in Feet
- \( h \) = Height of Overcut
- \( w \) = Width of Overcut
- \( f \) = Overcut Factor
- \( g \) = Ground Factor

GENERAL NOTES:
- Designed in accordance with ASABE/LRFD Bridge Design Specifications
- Percent Splices: 0%
- Bridge Type: Box Culvert
- Poles: 2
- Design: 7.50 kips
- Construction: Cast-in-Place

SECTION C-C

CONCRETE WINGWALLS WITH PARALLEL WINGS FOR BOX CULVERTS TYPES PW-1 AND PW-2

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LUMPKIN ROAD
H-71700-0012-3

CONCRETE WINGWALLS

FILE NO.

DESIGNER:

CONTRACTOR:

ADDITIONAL:

MATERIALS:

CONSTRUCTION:

INSTRUCTIONS:

This drawing is for the use of the project team and is to be considered confidential and is for the use of the project team only. It is to be used for the purpose of the project for which it was prepared and is not to be used for any other purposes without the written consent of the project team.
LUMPKIN ROAD
FROM IH 10 FRONTAGE ROAD TO 400' SOUTH OF WESTVIEW
*STA. 19+50 TO STA. 22+55 - PAVEMENT TRANSITIONS FROM 22' TO 39'

NOTE:
1. NORTHBOUND & SOUTHBOUND LEFT
   TURN LAKES EXIST AT THE INTERSECTION OF WESTVIEW ROAD.

LUMPKIN ROAD
STA. 20+90 TO STA. 24+20 - 39' CONCRETE CURB AND GUTTER
LUMPKIN ROAD
STA. 1+51.86 TO STA. 1+95.50
* WATCH TxDOT PAVEMENT

LUMPKIN ROAD
STA. 2+13.00 TO STA 2+97.6,
STA 20+46 TO STA 22+96,
STA 24+15 TO STA. 34+78 (ALTERNATE BID)
NOTE:
1. FOR STATION 17+00 TO 18+00 (FAULT ZONE LIMITS) SEE PROPOSED TYPICAL SECTIONS SHEET 3 OF 3 FOR DETAILS.
2. NORTHBOUND & SOUTHBOUND LEFT TURN LANES EXIST AT THE INTERSECTION OF WESTVEN ROAD.
3. REFER TO CITY OF HOUSTON STANDARD DETAIL "CONCRETE PAVEMENT DETAIL" (CMS NO. 02751-01) FOR REINFORCING STEEL BAR SIZES AND SPACINGS.
LEGEND

- EXISTING ROW
- PROPOSED TRAFFIC FLOW

NOTE:
1. NORTHBOUND & SOUTHBOUND LEFT TURN LANES EXIST AT THE INTERSECTION OF WESTVIEW ROAD.
2. REFER TO CITY OF HOUSTON STANDARD DETAIL "CONCRETE PAVEMENT DETAIL" (CWD NO. 02791-011) FOR REINFORCING STEEL BAR SIZES AND SPACINGS.

LUMPKIN ROAD

WITHIN FAULT ZONE LIMITS
(STA. 17+00 TO STA. 18+00)
1. THE LAYOUT SKETCH OF THE PROPOSED IMPROVEMENTS IS SHOWN AS APPROXIMATE ONLY. THIS SHEET IS FOR GENERAL INFORMATION. FOR BORING INFORMATION, SEE GEO-TECHNICAL INVESTIGATION RECONSTRUCTION OF LUMPKIN ROAD BETWEEN IH10 AND WESTVIEW DRIVE, DATED FEBRUARY 2013, BY AVILES ENGINEERING CORP., REPORT NO. 0153-10 AND GEO-TECHNICAL INVESTIGATION LUMPKIN ROAD FROM WESTVIEW TO NORTHROOK, DATED MARCH 2014, BY AVILES ENGINEERING CORP., REPORT NO. 0157-14.
SEE PROFILE VIEW SHEET 6 OF 18
SEE PLAN VIEW SHEET 11 OF 18
NOTES:
1. MAINTAIN WATER SERVICES TO ALL CUSTOMERS, FIRE HYDRANTS, AND INTERCONNECTIONS. PROVIDE TEMPORARY CONNECTION AS NECESSARY FOR CONSTRUCTION.
2. REMOVE AND REPLACE MI FRAME AND COVER AND ADJUST TO NEW GRADE, SEE DETAILS.
3. SEE PAVEMENT & STORM SEWER SHEETS FOR MORE INFORMATION.
4. RECONNECT ALL EXIST SERVICES TO PROP SAN SWR.
5. RECONNECT ALL EXIST LATERALS TO PROP SAN SWR MI.
6. ANY EXCAVATION CAUSING A GAS LINE TO BECOME EXPOSED SHOULD NOT BE RICHER THAN 25 FEET, PERPENDICULAR TO TRENCH, SUPPORT LINE USING TIMBERS RESTING ON NATURAL GROUND ABOVE THE LINE WITH NYLON STRAPS. IF CONTRACTOR REQUIRES MORE THAN 25 FEET, INFORM ENGINEER.
7. CONTRACTOR SHALL BRACE AND SUPPORT ATTACHED BURIED CABLE DURING CONSTRUCTION AND MAINTAIN 12-INCH MINIMUM VERTICAL CLEARANCE BETWEEN BURIED CABLES AND PROPOSED UTILITIES.
8. USE TRENCHLESS METHODS TO CROSS NORTHBROOK.

SEE PROFILE VIEW SHEET 16 OF 18
GENERAL NOTES

1. The Contractor shall provide and install traffic control devices in accordance with Part VI of Texas Highway Manual (Uniform Traffic Control Devices [UTCD]) latest edition with revisions during the entire construction period.

2. All signs and traffic control devices shall conform to the latest revision of the MUTCD.

3. No lanes shall be closed during the hours of 10:00 AM to 1:00 PM and 4:00 PM to 6:00 PM Monday thru Friday without approval of the City Traffic Engineer.

4. No work shall be performed in residential areas from 7:00 PM to 7:00 AM.

5. Contractor shall monitor approval of noise of traffic in each direction during construction working hours.

6. Traffic control plans shall include a one-way and/or detour plans.

7. Contractor shall maintain traffic signs and devices according to traffic control plans during working hours.

8. Contractor shall ensure open pavement access for minor utility work with secured steel plates during non-working hours, and open lanes for normal traffic flow when feasible.

9. If the Contractor does not use a different method of "Traffic Control Plans" during the construction than what is submitted in the contract drawings, the Contractor shall be responsible to propose and submit an alternate set of traffic control plans to the City of Houston Project Manager for approval prior to implementation. These plans shall be shown to induce vehicle and pedestrian control and shall be utilized by a licensed engineer in the State of Texas. Traffic Operations Division representative approved to accept the proposed changes.

10. Contractor shall secure and/or obtain closure permits from Traffic Operations Division (Mabry Permit Section). Before implementing the traffic control plans, the application shall be submitted at least ten business days prior to the implementation of the traffic control plan and/or beginning construction work. the contractor shall provide traffic control plans, construction sequencing, and schedule with the application.

11. Contractor shall have approved traffic control plans and permits at the job site for inspection at all times.

12. During pavement surface restoration projects, the Contractor shall not open closed lanes until the pavement surface has cured enough to allow vehicular traffic according to City of Houston Standard Specifications.

13. The Contractor is responsible for scheduling and coordinating all construction activities with stake holders in the vicinity. Including emergency response agencies such as Houston Police Department, Houston Fire Department, and Metropolitan Transit Authority.

14. Contractor shall be responsible for locating all work directing to all sub-contractors, utility companies, and all others entities performing construction work associated with the project.

15. Nothing in these notes or plans shall relieve the Contractor of the responsibility for job-site conditions during the course of construction of the project, including safety of all modes of transportation, persons, and property, and that this requirement shall apply continuously and not to be limited to working hours.

16. The Traffic Operations Division (Mabry Permit Section) per the direction of the City Traffic Engineer have the right to demand the removal of additional traffic control devices or modifications to these plans and notes, as deemed necessary to promote the safe and orderly flow of traffic and pedestrians through the construction work zone. The Contractor shall comply with these additional requests or modifications with due diligence.

17. Access to driveways adjacent to the construction work shall be maintained at all times as possible. Additional cone delineators may be required to deliver the driveway access route through the construction work zone. A minimum of two travel lanes shall be maintained across the driveway, when prior written approval is obtained from City of Houston Project Manager.

18. License holders for handing operating along or across any public street may be required to be remodeled by the Contractor.

19. The Contractor shall submit an application for temporary parking restrictions if there are any parking meters located at the proposed lane closures from Parking Management [Public Utilities] 104549 or on any existing days before implementation of lane closures. In addition, temporary parking signs shall be posted 24 hours prior to commencement of work.

20. Additional off-duty police officers/flaggers may be required to direct traffic lanes when needed in the vicinity of the City Traffic Manager even if they are not specifically identified on the project plans.

21. The Contractor shall be responsible for any traffic signals and/or lane closures during construction.

22. In general, a police/traffic officer and/or flagger shall be required on each major through lane closure. Exceptions to Flagger areas and/or implementation of residential lane closures shall be approved by the City Traffic Engineer.

23. Approved traffic control plan shall be in place before any excavation.

CHANNELIZATION AND BARRICADES

LEGEND

- PLASTIC DRUM (Delineating device)
- FLASHING ARROW PANEL
- FLASHER
- TYPE III BARRICADE
- PLASTIC DRUM
- VERTICAL PANEL

MEMORIAL CITY
REDEVELOPMENT AUTHORITY

LOCKWOOD ANDREWS & NEWBORN, INC.
A VAT & HOPFENBARM COMPANY
LUMPKIN ROAD
M-11700-0012-B
TRAFFIC CONTROL PLAN

TOP NOTES

CHANNING DEVICES AND BARRICADES

NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

NOT TO SCALE

FILE NO.

SHOULDER SCALE

NOT TO SCALE

116 OF 2/25
LEGEND

- **TEMPORARY ASPHALT PAVEMENT**
- **WORK ZONE**
- **TYPE IIII BARRICADE**
- **W/ ROAD CLOSED SIGN**
- **FLASHING ARROW PANEL**
- **DRUMS**
- **EXISTING STRIPING**
- **TEMP GROUND MOUNTED SIGNS**
- **DIRECTION OF TRAFFIC**
- **TY I WITH TY II END TREATMENT**
- **LOW PROFILE CONC BARRIER**

NOTES:

1. SETUP "SOUTH BOUND DETOUR" PRIOR TO COMMENCING THIS PHASE.
2. SEE SHEET "SOUTHBOUND DETOUR PLAN" FOR DETAILS.
3. CONTRACTOR TO RESTORE MEDIANS ONCE PHASE THREE IS COMPLETE.
4. CONTRACTOR TO REALIGN TEMPORARY TRAFFIC SIGNALS AS NEEDED.
5. CONTRACTOR MAY USE TEMPORARY RAISED YELLOW MARKER INSTEAD OF VERTICAL PANELS PER PROJECT MANAGER'S APPROVAL.
6. HIGH EARLY STRENGTH CONCRETE SHALL BE USED ON ALL INTERSECTIONS AND DRIVeways.
7. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES TO LANDSCAPE/IrrIGATION SYSTEM WITHIN MEDIANS. NO SEPARATE PAY.
TYPICAL TRAFFIC CONTROL SECTION
SECTION D-D
LIMPKIN ROAD
(STA. 24+30 TO STA. 26+00)

NOTES:
1. TRANSITION SOUTHBOUND TRAFFIC THROUGH INTERSECTION INTO NEW LIMPKIN ROAD, SOUTH OF WESTVIEW.
2. DO NOT CONSTRUCT PROPOSED CURB OR SIDEWALK (WEST SIDE) UNTIL AFTER THIS STEP.
3. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH PROPERTY OWNER TO PROVIDE ACCESS TO BUSINESS & RESIDENTS AT ALL TIMES.
4. REFER TO "TEMPORARY SIGNAL LAYOUT" FOR SIGNAL OPERATION DURING CONSTRUCTION.
5. HIGH EARLY STRENGTH CONCRETE SHALL BE USED ON ALL INTERSECTIONS & DRIVEWAYS.
6. BARRIER CONSTRUCTION CAN BE CONCURRENT WITH PHASE 2.

LIMIT RPM ROAD WORK

LIMPKIN SPEED LIMIT = 30 MPH
TYPICAL LEFT LANE CLOSURE OF A MULTILANE STREEET

<table>
<thead>
<tr>
<th>Length for Longitudinal Buffer</th>
<th>LEGEND (TYPICAL)</th>
<th>TYPICAL SPAWN AND TAPER LENGTHS.</th>
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<tr>
<td>Speed (mph)</td>
<td>Length in feet (ft)</td>
<td>Plastic Driveway</td>
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<tr>
<td>20</td>
<td>30</td>
<td>Plastic Drive</td>
</tr>
<tr>
<td>25</td>
<td>35</td>
<td>Yuan (unlabeled)</td>
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<tr>
<td>30</td>
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<td>Plastic Drive</td>
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<td>35</td>
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<td>Yuan (unlabeled)</td>
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<td>Yuan (unlabeled)</td>
</tr>
<tr>
<td>70</td>
<td></td>
<td>Plastic Drive</td>
</tr>
</tbody>
</table>

*Plaque not required

**Special Traffic Requirements**

1. Contractor shall provide and install traffic control devices in accordance with all applicable standards and specifications. These devices shall be designed, installed, and maintained in accordance with the Traffic Control Plans in the Project Design Manual.

2. The project shall be designed and constructed to minimize the impact on the traffic flow. This shall include, but not limited to:
   a. Designing the traffic control plan to ensure that it minimizes the impact on the traffic flow.
   b. Providing adequate signage and markings to direct traffic.
   c. Ensuring that all traffic control devices are in place and functioning properly.
   d. Coordinating with other agencies and utilities to ensure that their operations do not interfere with the traffic control plan.

3. The project shall be designed and constructed to minimize the impact on the traffic flow. This shall include, but not limited to:
   a. Designing the traffic control plan to ensure that it minimizes the impact on the traffic flow.
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   b. Providing adequate signage and markings to direct traffic.
   c. Ensuring that all traffic control devices are in place and functioning properly.
   d. Coordinating with other agencies and utilities to ensure that their operations do not interfere with the traffic control plan.

**Spacing for Channelizing Devices**

1. Plastic drive on median: 30' c-c with yellow line @ 80' c-c and type "C" warning light
2. Off-duty uniformed police @ 30' c-c
3. Type III Barricade @ 30' c-c
4. Flashing arrow panel @ 30' c-c
5. Tubular marker @ 20' c-c

**LUMPKIN ROAD**

**STREET NAME**

**SPEED LIMIT**

30 MPH

**CITY OF HOUSTON**

**DEPARTMENT OF PUBLIC WORKS AND ENGINEERING**

**LAN**

**MEMORIAL CITY REDEVELOPMENT AUTHORITY**

**Lockwood, Andrews & Newnam, Inc.**

**LUMPKIN ROAD**

**FILE NO.**

**PLAN NO.**

**SCALE OF PLAN**

**CITY OF HOUSTON**

**DEPARTMENT OF PUBLIC WORKS AND ENGINEERING**

**LAN**

**MEMORIAL CITY REDEVELOPMENT AUTHORITY**

**Lockwood, Andrews & Newnam, Inc.**

**LUMPKIN ROAD**

**FILE NO.**

**PLAN NO.**

**SCALE OF PLAN**
TYPICAL RIGHT LANE CLOSURE OF A MULTILANE STREET

SPACING FOR CHANNELIZING DEVICES

1. Plastic drums on non-pavement area 20" c-c with chevron sign 60" c-c and type 10 warning light

2. Plastic drums on non-pavement area 30" c-c

3. Plastic drums on pavement area 20" c-c

4. Plastic drums on pavement area 30" c-c with vertical panel 75" c-c and type 10 warning light 70" c-c (or equivalent approach)

5. Plastic drums in line of construction zone 20" c-c with vertical panel 60" c-c and type A warning light 65" c-c (or equivalent approach)

6. Plastic drums in line of construction zone 30" c-c with lateral traffic barrier (1" channel) with reflector 60" c-c

Note: Spacing shown on traffic control plans shall approximate the above spacings.

WESTVIEW DRIVE
LUMPIN ROAD
30 MPH
30 MPH

STREET NAME
SPEED LIMIT
## POLE SCHEDULE

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<th>POLE NUMBER</th>
<th>POLE TYPE</th>
<th>MAST ARM</th>
<th>SIGNALS</th>
<th>LUMINAIRES TYPE</th>
<th>PED PB</th>
<th>REMARKS</th>
<th>LOCATION</th>
<th>STANDARDS</th>
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<tr>
<td>E</td>
<td>TYPE 1</td>
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<td>4 ARSTEBRAC 2 PED</td>
<td>2HN3 184LF 1Y4LF 2CDP</td>
<td>POLARA NAVIGATOR R10-3E(L)</td>
<td>1 PRE-EMP SENSOR 1 STREET NAME SIGN POLE C - 1 NIMAX RADIO 2 R10-17T &quot;55&quot;</td>
<td>BY ENGINEER IN FIELD AT APPROX. POLE C - STA. 22+62.7 36.3' LT POLE E - STA. 24+02.4 33.5' RT LUMPKIN ROAD</td>
<td>02893-02 02893-03 02893-04A 02893-04B 02893-05 02893-09</td>
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<td>4 ARSTEBRAC 1 PED</td>
<td>2HN3 184LF 1Y4LF 1CDP</td>
<td>POLARA NAVIGATOR R10-3E(L)</td>
<td>1 PRE-EMP SENSOR 1 STREET NAME SIGN POLE D - STA. 23+96.2 41.8' LT POLE F - STA. 23+05.8 39.3' RT LUMPKIN ROAD</td>
<td>BY ENGINEER IN FIELD AT APPROX. POLE D - STA. 23+96.2 41.8' LT POLE F - STA. 23+05.8 39.3' RT LUMPKIN ROAD</td>
<td>02893-02 02893-03 02893-04A 02893-04B 02893-05 02893-09</td>
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<td>-</td>
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<td>-</td>
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<td>1CDP</td>
<td>POLARA NAVIGATOR R10-3E(R)</td>
<td>-</td>
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<td>1 PED</td>
<td>1CDP</td>
<td>POLARA NAVIGATOR R10-3E(R)</td>
<td>-</td>
<td>BY ENGINEER IN FIELD AT APPROX. POLE J - STA. 22+95.1 31.0' RT LUMPKIN ROAD</td>
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## TRAFFIC SIGNAL CONTROLLER

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<th>TYPE</th>
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<tbody>
<tr>
<td>A</td>
<td>UL</td>
<td>METERED SERVICE PEDESTAL WITH TWO SINGLE POLE 30 AND 60 AMP CIRCUIT BREAKERS</td>
<td>-</td>
<td>-</td>
<td>BY ENGINEER IN FIELD AT APPROX. STA. 23+02.3 57.3' LT LUMPKIN ROAD</td>
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<tr>
<td>B</td>
<td>ITS 340</td>
<td>2070L WITH GPS SERIAL COMMUNICATION MODULE AND BATTERY BACKUP SYSTEM</td>
<td>THREE POLE STREET LIGHTING CONTROLLER</td>
<td>STANDARD SPECIFICATION 16730, 16731 16730, AND 16785</td>
<td>BY ENGINEER IN FIELD AT APPROX. STA. 23+02.5 48.1' LT LUMPKIN ROAD</td>
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<td>RT-1</td>
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</table>
HOME DEPOT PARKING LOT
(SHOWN PARTIALLY)

HOUSTON COMMUNITY COLLEGE

LEGEND:

\[ TRAFFIC CIRCULATION \]

LUMPKIN RD

EXIST ROW

EXIST ROW

24 SPA. 9'X18'

14,00
15,00

N 40° 54' 29.12" E

N 40° 55' 20.12" E

24 SPA. 9'X18'

LEGEND:

TRAFFIC CIRCULATION

HOUSTON COMMUNITY COLLEGE

REFERENCE
SPEC. NO. 02767
DESCRIPTION TPM 14-Inch Solid Yellow "TS441"
UNIT LF
QTY 418

TPM - THERMOPLASTIC PAVEMENT MARKINGS
HOUSTON COMMUNITY COLLEGE PARKING LOT
(SHOWN PARTIALLY)

REFERENCE
02767  Remove Existing Striping  LF  1480
02767  TPM (X-Inch, Solid, Yellow "YS")  LF  1580
01594  Placement of Permanent Signs  SF  7

TPM = THERMOPLASTIC PAVEMENT MARKINGS

EXISTING PARKING STRIPING

14 SPA. @ 6.5'X18'

YS4 (TYP)

16 SPA. @ 6.5'X18'

YS4 (TYP)

10 SPA. @ 6.5'X18'

YS4 (TYP)

LEGEND:

TRAFFIC CIRCULATION

EXIST ROM

PROP ROM

LUMPKIN RD

R1-1 (30x30)

HOME DEPOT

DRIVEWAY

EXISTING PARKING STALLS REMOVED = 37 SPACES

NEW PARKING STALLS INSTALLED = 35 SPACES

MEMORIAL CITY
REDEVELOPMENT AUTHORITY

LOCKWOOD, ANDREWS & NAVANNA, INC.

LUMPKIN ROAD
H-117000-0012-3
SITE PARKING LAYOUT

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

FILE NO.

SHEET 3 OF 3

ISSUED

CONTRACTOR

SCALE:

1" = 20'

SHEETS:

1 OF 256
NOTES:

1. ALL INLET PROTECTION SHOULD INCLUDE:
   a) PROPOSED INLETS - STAGE A (SILT FENCE) AND STAGE B (GRAVEL BAGS)
   b) EXISTING INLETS - STAGE B GRAVEL BAGS ONLY

2. CONTRACTOR SHALL UTILIZE INLET PROTECTION BARRIERS ON ALL INLETS, WINDLESS, AND PIPE STUFF DURING CONSTRUCTION OF STORM SEWER.

3. UPON COMPLETION OF ROADMAPPING, SAND BAGS SHALL BE PLACED AT PROPOSED INLETS.

4. CONTRACTOR SHALL REFER TO SPECIFICATION SECTION 01650 FOR INFORMATION REGARDING STABILIZED CONSTRUCTION EXITS.

5. GATE INLETS LOCATED IN TEMPORARY ASPHALT TRAVEL LANE TO BE PROTECTED BY FILTER FABRIC FENCING PLACED AROUND THE NEARBY CONSTRUCTION ZONE.
LEGEND

LPB  Inlet Protection Barrier
77  Filter Fabric Fence
10  Reinforced Filter
11  Fabric Fence
160  Hay Bale

NOTES:

1. All inlet protection should include:
   a) Proposed Inlets - Stage 1 Silt Fence and Stage 2 Gravel Bag.
   b) Gravel Bags Only.

2. Contractor shall utilize inlet protection barriers on all inlets, manholes, and pipe stubs during construction of storm sewer.

3. Upon completion of roadway pavement, sand bag shall be placed at proposed inlets.

4. Contractor shall refer to specification section 21-575 for information regarding stabilized construction areas.

5. Grate inlets located in temporary asphalt travel lanes shall be protected by filter fabric fencing placed around the nearby construction zone.

MEMORIAL CITY REDEVELOPMENT AUTHORITY
Lockwood, Andrews & Newnam, Inc.
A LEWIS & CLARK COMPANY
LIMPKIN ROAD
N177000-0012-2
STORM WATER POLLUTION PREVENTION PLAN
SHEET 3 OF 4

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

FILE NO:
SHR177000
DRAWN: Jan 2014
SIGNED: Jan 2014

1 INCH = 40 FEET
NOTES:

1. CONTRACTOR TO REFER TO HOFCO STORMWATER POLLUTION PREVENTION DETAILS FOR BASIN ONLY

2. ALL INLET PROTECTION SHOULD INCLUDE:
   - PROPOSED INLETS - STAGE A (BILT FENCE) AND STAGE 2 (GRAVEL BAGS),
   - EXISTING INLETS - STAGE B (GRAVEL BAGS) ONLY.

3. CONTRACTOR SHALL UTILIZE INLET PROTECTION BARRIERS ON ALL INLETS, MANHOLE, AND PIPE STUBS DURING CONSTRUCTION OF STORM SEWER.
Tree Removal List

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Commonalities</th>
<th>Replacement requirement</th>
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</thead>
<tbody>
<tr>
<td>4&quot; Larch 2&quot; Elm</td>
<td>Tapped utility, Prune any live, remove for new HCCS</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>12&quot;' Oak 2&quot; Elm</td>
<td>Dead, Remove for setback</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>14&quot;' Oak 2&quot; Elm</td>
<td>Remove for setback</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>16&quot;' Oak 2&quot; Elm</td>
<td>Ordinance live, Remove for new street &amp; walk.</td>
<td>10</td>
<td></td>
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<tr>
<td>15 1/2' Cedar 2&quot; Elm</td>
<td>Ordinance live, Remove for new street &amp; walk.</td>
<td>15</td>
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<tr>
<td>TOTAL REPLACEMENT INCHES REQUIRED</td>
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Tree Replacement List

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<tr>
<th>Quantity</th>
<th>Caliper Size</th>
<th>Species</th>
<th>Container/Tree Spade size</th>
<th>Replacement planting included in Landscape Architecture Plans</th>
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TOTAL REPLACEMENT INCHES INCLUDED IN PLAN: 0

Note: Tree replacement locations shown on plans must be coordinated with adjacent property owners and City of Houston Urban Forestry prior to excavation for planting. Coordination shall be completed by Construction Contractor's certified arborist. Trees to be maintained and watered for 2 years following planting per standard spec 02915. Timing of planting may be delayed in periods of drought with mandatory water restrictions in place. Timing to be coordinated with City of Houston Urban Forestry. Trees in Esplanade groupings to be planted in common bed with 4' of hardwood mulch between trees.

Tree Protection Plan

<table>
<thead>
<tr>
<th>TREE PROTECTION FENCING DETAIL A</th>
<th>NEOT TO SCALE</th>
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Memorial City Redevelopment Authority
Lockwood, Andrews & Newnam, Inc.
A LEWIS HALL COMPANY
C.N. Kohl
Urban Forestry, Inc.
210 Stonehenge Ct. • Katy, Texas 77493
(281) 391-5000 • 800 232-4040 • info@kohlnaturalscapes.com
APPROVED, C. N. Kohl 7-28-16
LUMPKIN ROAD
N+T17000+002:3
TREE PROTECTION PLAN
SHEET 3 OF 3
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

<table>
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<td>0'-0&quot;</td>
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LUMPIN ROAD

GENERAL NOTE:

1. LOCATION OF CENTERPOINT ENERGY FACILITIES ARE APPROXIMATE.
2. ALL CONDUIT INSTALLATION MUST CONFORM TO CENTERPOINT ENERGY SPECIFICATION # 4400-000-12-001 (REV 010-001-01) LATEST REVISION, UNLESS OTHERWISE AUTHORIZED BY CENTERPOINT ENERGY LIGHTING DESIGN SERVICES DEPARTMENT.
3. CONTRACTOR SHALL INSTALL STREETLIGHT FOUNDATION PER CENTERPOINT ENERGY SPECIFICATION # 4400-000-12-001 (REV 010-001-01) LATEST REVISION, UNLESS OTHERWISE AUTHORIZED BY CENTERPOINT ENERGY LIGHTING DESIGN SERVICES DEPARTMENT. FOUNDATIONS DUE TO CONFLICTS WITH FOUNDATION DEPTH REQUIREMENTS. THE LIGHTING DESIGN SERVICES DEPARTMENT MUST REVISE SPECIAL FOUNDATION DESIGN PRIOR TO INSTALLATION.
4. CONSTRUCTION CONTRACTOR IS RESPONSIBLE FOR THE ARRANGEMENT OF CENTERPOINT ENERGY STANDBY TIME FOR 6" CONDUIT STUB UP.
5. CENTER LINE OF CONDUIT & POLE CASE ARE 3'-6" MIN. FROM FACE OF CURB EXCEPT AS NOTED.
6. ALL PROPOSED STREETLIGHTS ARE MODEL TYPE CONSTELLATIONS.
7./color/prop 6" pistol grip for new metal pole street light to be installed by centerpoint energy
8. prop new metal pole street light to be installed by centerpoint energy
9. prop new metal pole street light to be installed by centerpoint energy
10. prop 6" sidewalk

MEMORIAL CITY REDEVELOPMENT AUTHORITY

LUMPIN ROAD
N-71000-0012-3
STREET LIGHTING PLAN
SHEET 1 OF 4
LUMPKIN ROAD

GENERAL NOTES:

1. LOCATION OF CENTERPOINT ENERGY FACILITIES ARE APPROXIMATE.

2. ALL CONDUIT INSTALLATION MUST CONFORM TO CENTERPOINT ENERGY SPECIFICATION (FORMERLY HLP SPECIFICATION 007-311-03).

3. CONTRACTOR SHALL INSTALL STREET LIGHT FOUNDATION PER CENTERPOINT ENERGY SPECIFICATION, CONTRACTOR SHALL PROVIDE LOADING PLATES FOR FOUNDATIONS DUE TO CONFLICTS WITH FOUNDATION DEPTH REQUIREMENTS. THE LIGHTING DESIGN SERVICES DEPARTMENT MUST REVIEW SPECIAL FOUNDATION DESIGN PRIOR TO ISSUING CONTRACT.

4. CONTRACTOR TO CALL (512) 948-5220 FOR THE ARRANGEMENT OF CENTERPOINT ENERGY STANDOFF TIME FOR 2" CONDUIT STUB UP.

5. CENTER LINE OF CONDUIT & POLE CASE ARE 3'-6"

6. STREET LIGHTS ARE MODEL TYPE.

7. CONTRACTOR TO INSTALL LIGHT POLE FOUNDATION, CONDUIT & PULL BOXES. CENTERPOINT ENERGY WILL INSTALL CABLE AND LIGHT POLES. CONTRACTOR TO PROVIDE CONDUIT AND MATERIALS TO BE PROVIDED BY Center.

8. PROPOSED STREET LIGHT CONDUIT TO BE BORED WHEN WITHIN EXISTING TREE OR LINE, CONTRACTOR RESPONSIBLE FOR ANY DAMAGE TO EXISTING TREES, PLANTS, OR BUILDING EXTERIORS DURING STREET LIGHTING INSTALLATION.

9. PAYMENT REMIRED FOR EXISTING STREET LIGHT CONSTRUCTION OUTSIDE PROPOSED SIDEWALK CONSTRUCTION LIMITS TO BE REPLACED TO EQUAL OR BETTER EXISTING CONDITIONS, FULL PANEL REQUIRED FOR ALL SIDEWALK REPLACEMENT, NO SEPARATE PAY, (PILING ALLOWED).

STREET LIGHT LEGEND

PROPOSED STREET LIGHT INSTALLATION TO BE BOLTED TO CENTERPOINT ENERGY POLE.

PROPOSED UNDERGROUND STREET LIGHT CIRCUIT IN 2-INCH PVC SCHEDULE 40 CONDUIT PER CENTERPOINT ENERGY SPECIFICATIONS.

EXIST STREET LIGHT PULL BOX TO BE REMOVED BY CONTRACTOR.

EXIST STREET LIGHT PULL BOX TO BE SHIELDED BY CENTERPOINT ENERGY PERSONNEL MUST STAND BY DURING INSTALLATION. SEE GENERAL NOTE 4.

EXIST POLE WITH LIGHT ON RELOCATED.

EXIST POLE WITH LIGHT TO REMOVAL.
4 TRASH RECEPTACLE

2 BACKLESS BENCH

1 BICYCLE RACK
**PEDESTRIAN LIGHT FIXTURE MOUNTING**

- **Hess**

**AVALON 65A LED Specification**

- **Model:** LED Module
- **Material:** Aluminum
- **Rating:** 3500K-4000K
- **Height:** 36-60 inches

**Specifications are subject to change without notification.**

**CUSTOM PAINT COLOR**

- **Match Metallic:**
- **Matthews Paint Color:** CHAMPAGNE METALLIC

**AVALON 65A LED**

- **Expressed to a clear finish with a misted glass of exterior. Two horns must be shown proportionally requirements. The cast aluminum housing with a tempered glass top that the aluminum shade with two screws. The housing is a white color. The top is a clear finish with a misted glass of exterior.**

**PEDESTRIAN LIGHT FIXTURE**

- **Hess**

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**PEDESTRIAN LIGHT FIXTURE**

- **Hess**
NOTE 3

DEFORMED METAL STRIP
N.T.S.

1 1/2" JOINT SEAL AS SPECIFIED

CONCRETE PAVEMENT
N.T.S.

3/4" BOARD EXPANSION JOINT FILLER

PRE-MANUFACTURED JOINT PLATE

SECTION

DOWEL TYPE EXPANSION JOINT
N.T.S.

SECTION

CONSTRUCTION JOINT SEAL
N.T.S.

NOTES:

1. STEELS TO MEET ASTM STANDARD SPECIFICATIONS FOR CONCRETE REINFORCING BARS. UNITS TO BE SPACED ON 12" CENTERS.

2. EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIAL.

3. CENTER DOWEL HORIZONTALLY ON JOINT.

4. CENTER DOWEL VERTICALLY IN CONCRETE BASE EXTEND THICKENED CONCRETE AS NEEDED TO MAINTAIN 3" MIN. COVER.

5. CITY OF HOUSTON APPROVED PRODUCTS MAY BE USED AS JOINT PLATE ALTERNATIVE.

PLAN - JOINT PLATE

1/4" DIA.

DOWEL DIA = 1/16"

ELEVATION - JOINT PLATE
N.T.S.

| TABLE 1 |
|---|---|---|---|
| PAVEMENT THICKNESS (IN) | DOWEL SIZES AND SPACINGS | DIAMETER (IN) | LENGTH (IN) | SPACING (IN) |
| 6 | 3/4 | 12 | 12 |
| 8 | 1 | 12 | 12 |
| 8 | 1 1/4 | 12 | 12 |
| 10 | 1 1/4 | 12 | 12 |
| 12 | 1 1/4 | 12 | 12 |

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

PAVEMENT EXPANSION AND CONSTRUCTION JOINT DETAILS
SH 10 HO CH 195

MEASUREMENTS

CITY OF HOUSTON PUBLIC WORKS AND ENGINEERING

PAVEMENT DETAILS

SHEET 1 OF 3

MEMORIAL CITY
REDEVELOPMENT AUTHORITY

LAWRENCE, ANDREWS & NOLLANS, INC.

LUMPKIN ROAD
N 107000-0012-3

PAVEMENT DETAILS

SHEET 1 OF 3

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

PAVEMENT EXPANSION AND CONSTRUCTION JOINT DETAILS
SH 10 HO CH 195
NOTE:

1. EXPOSE 15' OF REINFORCING STEEL AT PROPOSED SAWED JOINT. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS. HORIZONTAL DOWELS SHALL BE #8 BARS, 24'-0" LONG, 2'-0" C-C, DRILLED AND EMBEDDED 8" INTO THE CENTER OF THE EXISTING SLAB WITH "PO ROC" OR EQUAL.

2. IF REINFORCED CONCRETE IS OVERLAYERED WITH ASPHALT, REPLACE WITH 2" MIN. PMAC SURFACING.

3. REFER TO STANDARD DETAIL 02751-01 FOR REINFORCING STEEL REQUIREMENTS.

4. REFER TO STANDARD DETAIL 02951-01 FOR PAVEMENT RESTORATION LIMITS.

CITY OF HOUSTON PAVEMENT REPAIR DETAILS
FOR STREET CUTS (NAT TO SCALE)

CITY OF HOUSTON PAVEMENT REPAIR DETAILS
FOR Non-REINFORCED CONCRETE AND BRICK PAVEMENT (NAT TO SCALE)

LUMFIN ROAD N-117000-0012-3 PAVEMENT REPAIR DETAILS
GENERAL NOTES FOR DETECTABLE WARNINGS

1. CURB RAMPS MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES COMPLYING WITH SECTION 4.29 OF THE TEXAS ACCESSIBILITY STANDARDS. THEY MUST CONTRAST VISUALLY WITH THE SURFACE INCLUDING SIDE FLOORS, FURNISH DARK BROWN OR DARK RED DETECTABLE WARNING SURFACE ADJACENT TO UNCOLORED CONCRETE, UNLESS SPECIFIED ELSEWHERE IN THE PLANS.

2. DETECTABLE WARNING SURFACES MUST BE SLIP RESISTANT AND NOT ALLOW WATER TO ACCUMULATE.

3. ALIGN TRUNCATED DOMES IN THE DIRECTION OF PEDESTRIAN TRAVEL WHEN ENTERING THE STREET.

4. OMIT

5. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24" IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR LANDING WHERE THE PEDESTRIAN ACCESS ROUTE ENTERS THE STREET.

6. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS A MINIMUM OF 6" AND A MAXIMUM OF 18" FROM THE EXTENSION OF THE FACE OF CURB. DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADIUS.

7. REFERENCE CURB RAMP DETAILS FOR RAMP GROOVED SURFACE.
**EXCAVATION & BACKFILL DETAIL**

**FOR LARGE DIAMETER WATER MAIN**

**NOTES:**
1. SEE TRENCH SAFETY SYSTEM SPECIFICATIONS FOR MINIMUM ALLOWABLE SLEEPS.
2. FOR NET BOTTOM EXCAVATION LIMITS OF CUSHION STONE, EXTEND AS SHOWN.
3. KEY CONCRETE TRENCH DAM MINIMUM OF 6 INCHES INTO TRENCH BOTTOM AND WALLS.
4. CENTER 1/16 JOINT OF D.I.P. TM.
5. CENTER 1/8 JOINT OF D.I.P. TM.
6. SEE DEPTH WHERE SHOWN.
7. EXISTING SAN. DWELL.LINE.
8. PIPE STABILIZED S.F.
9. BANK SAND IN EACH DIRECTION.
10. PIPE STABILIZED S.F.
11. BANK SAND IN EACH DIRECTION.
12. 6" PROPOSED WATER MAIN.

**D.I.P. OVER PROPOSED WATER LINE**

**NOTES:**
1. PROPOSED WATER MAIN.
2. 6" D.I.P. TM. TO OVER MAIN.
3. EXISTING SAN. DWELL.LINE.
4. PIPE STABILIZED S.F.
5. BANK SAND IN EACH DIRECTION.
6. 6" PROPOSED WATER MAIN.

**EMBEDMENT AND CORROSION PROTECTION FOR SANITARY SEWER DUCTILE IRON PIPE**

**NOTES:**
1. EMBEDMENT EXCAVATION OF TRENCH PLACE A LAYER OF CONCRETE STABILIZED S.F. ON TOP OF MAIN, TOP LAYER OF PIPE WITH A 0" OVERLAP MIN. AND 5" AROUND PIPE WITH HEAVY BAND MIN. 12" MIN. OVERLAP IN EACH DIRECTION, THEN PLACE A LAYER OF CONCRETE SAND UNTIL 12" ABOVE.
2. ALL DUCTILE IRON PIPE SHALL HAVE A POLYSTYRENE WRAP OF 6" MINIMUM THICKNESS MINIMUM EXCEPT AS NOTED BELOW.
3. WHERE PIPE IS IN A BEDDED, THE PIPE TO BE PlACED IN AN AGED OR TANKED, OR IF A CASTING, THE PIPE TO BE AGED OR BURIED TO 12" CONCRETE AND SHALL BE BURIED 6" MIN. WITH 18" STAINLESS STEEL BANDS, 90 DEGREES TO BE AS SPECIFIED FOR TRENCH SECTIONS.

**EXCAVATION & BACKFILL DETAIL [FOR LARGE DIAMETER WATER MAIN WITH HEIGHT OF EARTH COVER GREATER THAN 16']**

**NOTES:**
1. SEE TRENCH SAFETY SYSTEM SPECIFICATIONS FOR MINIMUM ALLOWABLE SLEEPS.
2. FOR NET BOTTOM EXCAVATION LIMITS OF CUSHION STONE, EXTEND AS SHOWN.
3. KEY CONCRETE TRENCH DAM MINIMUM OF 6 INCHES INTO TRENCH BOTTOM AND WALLS.
4. CENTER 1/16 JOINT OF D.I.P. TM.
5. CENTER 1/8 JOINT OF D.I.P. TM.
6. SEE DEPTH WHERE SHOWN.
7. EXISTING SAN. DWELL.LINE.
8. PIPE STABILIZED S.F.
9. BANK SAND IN EACH DIRECTION.
10. PIPE STABILIZED S.F.
11. BANK SAND IN EACH DIRECTION.