### Site Description

**Project Limits:** Damage inventory #33110: Sites along the east side of the Arkansas River including: Site 159, Site 352, Site 260, and Site 379. All approximately located in the Sea of Section 12 of Ok Tatin R 12 E. Within the City Limits of Tulsa, Oklahoma.

**Project Description:**
- Site 159: Erosion Control
- Site 352: Erosion Control
- Site 260: Erosion Control
- Site 379: Erosion Control

**Suggested Sequence of Erosion Control Activities:**
1. Temporary Erosion Control
2. Permanent Erosion Control

### Erosion and Sediment Controls

#### Soil Stabilization Practices:
- **Stabilized Construction Exit**
- **Temporary Silt Fence**
- **Temporary Silt Dikes**
- **Temporary Fiber Log**
- **Diversion, Intercept or Perimeter Dikes**
- **Diversion, Intercept or Perimeter Shales**
- **Rock Filter Dams**
- **Temporary Slope Drain**
- **Paved Ditch w/ Ditch Liner Protection**
- **Temporary Diversion Channels**
- **Temporary Diversion Basins**
- **Temporary Sediment Traps**
- **Temporary Sediment Filters**
- **Temporary Sediment Removal**
- **Rip Rap**
- **Inlet Sediment Filter**
- **Temporary Brush Sediment Barriers**
- **Sandbag Barriers**
- **Temporary Stream Crossings**

#### Offsite Vehicle Tracking:
- **Haul Roads Dampered for Dust Control**
- **Loaded Haul Trucks to be Covered with Tarps**
- **Excess Dirt on Road Removed Daily**

#### Marketing and Inspection:
- All erosion and sediment controls will be maintained in good working order from the beginning of construction until an acceptable vegetative cover is established. Inspection by the contractor and any necessary repairs shall be performed once every 30 calendar days and within 24 hours after any storm event greater than 0.5 inch as recorded by a non-flooding rain gauge to be located on site, potentially erodible areas, drainage areas, material storage structures, devices, construction entrances and exits along with erosion and sediment control locations are examples of sites that need to be inspected.

#### Waste Materials:
- Proper management and disposal of construction waste materials is required by the contractor. Materials include stockpiles, surplus, debris, and all other by-products from the construction process. Practices include disposal, proper materials handling, spill prevention and cleanup measures. Control and practices shall meet the requirements of all federal, state, and local agencies.

#### Hazardous Materials:
- Proper management and disposal of hazardous waste materials is required. The contractor is responsible for following MANUFACTURERS’ RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES.

#### General Notes:
A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) is required to comply with the OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. This plan is initiated during the design phase, during the construction phase, and during the permanent operations phase.

The following sections of the 2009 ODOT standard specifications should be noted:
- 103.05: Bonding Requirements
- 104.10: Final Cleaning-up
- 104.12: Contractor's Responsibility for Work
- 104.13: Environmental Protection
- 108.08: Storage and Handling of Material
- 109.01: Laws, Rules and Regulations to Be Observed
- 109.20: Storm Water Management
- 220: Management of Erosion, Sedimentation and Storm Water Pollution Prevention and Control
- 221: Temporary Sediment Control

In addition:
- "OSG General Permit (OKR10) for Storm Water Discharges from Construction Activities Within the State of Oklahoma" OSEG, Water Quality Division. September 13, 2017.
CONSTRUCTION NOTES:

SITE 169 (36.1338, -95.99180)
BACKFILL, 4 CY OF UNCLASSIFIED FILL, 14 FT LONG, X 4 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL AROUND PIPE.

<table>
<thead>
<tr>
<th>ROADWAY ID</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>202201</td>
<td>UNCLASSIFIED BORROW</td>
<td>CV</td>
<td>0.00</td>
<td>4.00</td>
</tr>
<tr>
<td>202203</td>
<td>SOLID SLAB GROUNDING</td>
<td>0-20, 1</td>
<td>SY</td>
<td>7.00</td>
</tr>
</tbody>
</table>

PROJECT NOTES:
1. SITE ESTIMATES FOR WORK TO BE COMPLETED WERE GENERATED USING RS MEANS.
2. ALL BORROW OR FILL MATERIAL MUST COME FROM PRE-EXISTING STOCKPILES, MATERIAL RECLAIMED FROM MAINTAINED ROADSIDE DITCHES (PROVIDED THE DESIGNED WIDTH OR DEPTH OF THE DITCH IS NOT INCREASED), OR COMMERCIALLY PROCURED MATERIAL FROM A SOURCE EXISTING PRIOR TO THE EVENT. FOR ANY FEMA-FUNDED PROJECT REQUIRING THE USE OF A NON-COMMERCIAL SOURCE, OR A COMMERCIAL SOURCE THAT WAS NOT PERMITTED TO OPERATE PRIOR TO THE EVENT (E.G. A NEW PIT, AGRICULTURAL FIELDS, ROAD ROWS, ETC.) IN WHOLE OR IN PART, REGARDLESS OF COST, THE APPLICANT MUST NOTIFY FEMA AND THE RECIPENT PRIOR TO EXTRACTING MATERIAL. FEMA MUST REVIEW THE SOURCE FOR PRESERVATION LAWS AND EXECUTE ORDERS PRIOR TO A SUBRECIPIENT OR THEIR CONTRACTOR COMMENCING BORROW EXTRACTION. CONSULTATION AND REGULATORY PERMITTING MAY BE REQUIRED. NONCOMPLIANCE WITH THIS REQUIREMENT MAY JEOPARDIZE RECEIPT OF FEDERAL FUNDING. DOCUMENTATION OF BORROW SOURCES UTILIZED IS REQUIRED AT CLOSING.
3. ALL EXCAVATION DIMENSIONS ARE SHOWN IN THE DDG.

SITE PHOTO

SITE 169

LEGEND

FEMA SITE AREA

FEMA SITE 169

PROJECT #173120-1021-12855
DAMAGE # 331100

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Walker & Associates, LLC

DESIGNER:  J. WALKER  DATE:  12-16-2020
PLANS AND SPECIFICATIONS

OKIE811

TULSA, OKLAHOMA

DESIGNER:  J. WALKER  DATE:  12-16-2020
PLANS AND SPECIFICATIONS

OKIE811

TULSA, OKLAHOMA

DESIGNER:  J. WALKER  DATE:  12-16-2020
PLANS AND SPECIFICATIONS

OKIE811

TULSA, OKLAHOMA
CONSTRUCTION NOTES:

SITE 352 (36.13640, -95.99390)

BACKFILL, 133 CY OF UNCLASSIFIED FILL, 150 FT LONG X 12 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL ALONG BANK.

PROJECT NOTES:

1. SITE ESTIMATES FOR WORK TO BE COMPLETED WERE GENERATED USING RS MEANS.

2. ALL BORROW OR FILL MATERIAL MUST COME FROM PRE-EXISTING STOCKPILES, MATERIAL RECLAIMED FROM MAINTAINED ROADSIDE DITCHES (PROVIDED THE DESIGNED WIDTH OR DEPTH OF THE DITCH IS NOT INCREASED), OR COMMERCIAL SOURCES FROM A SOURCE EXISTING PRIOR TO THE EVENT. FOR ANY FEMA-FUNDED PROJECT REQUIRING THE USE OF A COMMERCIAL SOURCE OR A COMMERCIAL SOURCE THAT WAS NOT PERMITTED TO OPERATE PRIOR TO THE EVENT (E.G., A NEW PT, AGRICULTURAL FIELDS, ROAD BROWS, ETC.) IN WHOLE OR IN PART, REGARDLESS OF COST, THE APPLICANT MUST NOTIFY FEMA AND THE RECIPIENT PRIOR TO EXTRACTING MATERIAL. FEMA MUST APPROVE THE SOURCE FOR PRESERVATION LAWS AND EXECUTIVE ORDERS PRIOR TO A SUBRECIPIENT OR THEIR CONTRACTOR COMMENCING BORROW EXTRCTION. CONSULTATION AND REGULATORY PERMITTING MAY BE REQUIRED. NONCOMPLIANCE WITH THIS REQUIREMENT MAY JUDICIALIZE RECEIPT OF FEDERAL FUNDS. DOCUMENTATION OF BORROW SOURCES UTILIZED IS REQUIRED AT CLOSOUT.

3. ALL EXCAVATION DIMENSIONS ARE SHOWN IN THE DDD.
CONSTRUCTION NOTES:

SITE 360 (36.13690, -95.99410)

BACKFILL, 93 CY OF UNECLASIFIED FILL, 50 FT LONG X 25 FT WIDE X 2 FT DEEP.
SURFACE WATER FLOODING ERODED SOIL AROUND PIPE.

SITE 360 - (36.13690, -95.99410)

HAZARD MITIGATION PROPOSAL (HMP) SCOPE OF WORK:
1. ADDING 4.24 CY RIP RAP TO MITIGATE DAMAGE FROM RAPIDLY FLOWING FLOOD WATERS.
2. ADDING 25 SQ YD GEOSYNTHETIC FABRIC TO PREVENT EROSION CAUSED BY RAPIDLY FLOWING FLOOD WATERS.

PROJECT NOTES:
1. SITE ESTIMATES FOR WORK TO BE COMPLETED WERE GENERATED USING RS MEANS.
2. ALL BORROW OR FILL MATERIAL MUST COME FROM PRE-EXISTING STOCKPILES, MATERIAL RECLAIMED FROM MAINTAINED ROADSIDE Ditches (PROVIDED THE DESIGNED WIDTH OR DEPTH OF THE DITCH IS NOT INCREASED). OR COMMERCIAL MATERIAL FROM A SOURCE EXISTING PRIOR TO THE EVENT. FOR ANY FEMA-FUNDED PROJECT REQUIRING THE USE OF A NON-COMMERCIAL SOURCE OR A COMMERCIAL SOURCE THAT WAS NOT PERMITTED TO OPERATE PRIOR TO THE EVENT (E.G. A NEW PUMP, AGRICULTURAL FIELDS, ROAD ROWS, ETC.) IN WHOLE OR IN PART, REGARDLESS OF COST, THE APPLICANT MUST NOTIFY FEMA AND THE RECIPIENT PRIOR TO EXTRACTING MATERIAL. FEMA MUST REVIEW THE SOURCE FOR PRESERVATION LAND AND EXECUTIVE ORDERS PRIOR TO A SUBRECIPIENT OR THEIR CONTRACTOR COMMENCING BORROW EXTRACTION. CONSULTATION AND REGULATORY PERMITTING MAY BE REQUIRED. NONCOMPLIANCE WITH THIS REQUIREMENT MAY JEOPARDIZE RECEIPT OF FEDERAL FUNDING. DOCUMENTATION OF BORROW SOURCES UTILIZED IS REQUIRED AT CLOSEOUT.
3. ALL EXCAVATION DIMENSIONS ARE SHOWN IN THE ODD.

HMP SCOPE NOTE:
1. THE MITIGATION PROPOSAL ESTIMATES WERE GENERATED USING RS MEANS.

SITE PHOTO

LEGEND

FEMA SITE 360
PROJECT #173120-TO21-126335
DAMAGE # 331100
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

12/14/2020
CONSTRUCTION NOTES:
SITE 379 (36.13390, -95.99180)
BACKFILL, 37 CY OF UNCLASSIFIED FILL, 22 FT LONG X 15 FT WIDE X 3 FT DEEP, SURFACE WATER FLOODING ERODED SOIL AROUND PIPE.

PROJECT NOTES:
1. SITE ESTIMATES FOR WORK TO BE COMPLETED WERE GENERATED USING RS MEANS.
2. ALL BORROW OR FILL MATERIAL MUST COME FROM PRE-EXISTING STOCKPILES, MATERIAL RECLAIMED FROM MAINTAINED ROADSIDE DITCHES (PROVIDED THE DESIGNED WIDTH OR BOTH OF THE DITCH IS NOT INCREASED), OR COMMERCIALLY PROCURED MATERIAL FROM A SOURCE EXISTING PRIOR TO THE EVENT. FOR ANY FEMA-FUNDED PROJECT REQUIRING THE USE OF A NON-COMMERCIAL SOURCE OR A COMMERCIAL SOURCE THAT WAS NOT PERMITTED TO OPERATE PRIOR TO THE EVENT (E.G. A NEW PIT, AGRICULTURAL FIELDS, ROAD ROWS, ETC.) IN WHOLE OR IN PART, REGARDLESS OF COST, THE APPLICANT MUST NOTIFY FEMA AND THE RECIPIENT PRIOR TO EXTRACTING MATERIAL. FEMA MUST REVISE THE SOURCE FOR PRESERVATION LAWS AND EXECUTE ORDERS PRIOR TO A SUBSEQUENT OR THEIR CONTRACTOR COMMENCING BORROW EXTRACTION. CONSULTATION AND REGULATORY PERMITTING MAY BE REQUIRED. NONCOMPLIANCE WITH THIS REQUIREMENT MAY JEOPARDIZE RECEIPT OF FEDERAL FUNDING. DOCUMENTATION OF BORROW SOURCES UTILIZED IS REQUIRED AT CLOSEOUT.
3. ALL EXCAVATION DIMENSIONS ARE SHOWN IN THE DOD.

SITE PHOTO
STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION

PROJECT LIMITS: DAMAGE INVENTORY #331103 SITES ALONG THE EAST SIDE OF THE ARKANSAS RIVER INCLUDING, SITE 172, SITE 173, SITE 174, SITE 414, SITE 424, AND SITE 424A. ALL APPROXIMATELY LOCATED IN THE SQ 90 OF SECTION 12 AND NO 0 OF SECTION 36 OF OK T1N R 12 E. WITHIN THE CITY LIMITS OF TULSA, OKLAHOMA.

PROJECT DESCRIPTION:
SITE 172: EROSION CONTROL AND CLAY PUMP END SECTION (REMOVE AND REPLACE)
SITE 173: REPLACE CONCRETE APRON
SITE 174: REPLACE CONCRETE APRON
SITE 414: REPLACE PIPE
SITE 424: REPLACE PIPE
SITE 424A: REPLACE PIPE

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:
1. TEMPORARY EROSION CONTROL
2. PERMANENT EROSION CONTROL

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:
- TEMPORARY SEEDING
- PERMANENT SODDENING, SPRIGGING OR SEEDING
- VEGETATIVE MULCHING
- SOIL RETENTION BLANKET
- PRESERVATION OF EXISTING VEGETATION

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:
- STABILIZED CONSTRUCTION EXIT
- TEMPORARY SILT FENCE
- TEMPORARY SILT DYES
- TEMPORARY FIBER LOG
- DIVERSION, INTERCEPTOR OR PERIMETER DYES
- DIVERSION, INTERCEPTOR OR PERIMETER SWALES
- ROCK FILTER DAMS
- TEMPORARY SLOPE DRAIN
- PAVED DITCH W/DITCH LINER PROTECTION
- TEMPORARY DIVERSION CHANNELS
- TEMPORARY SEDIMENT BASINS
- TEMPORARY SEDIMENT TRAPS
- TEMPORARY SEDIMENT FILTERS
- TEMPORARY SEDIMENT REMOVAL
- RIP RAP
- INLET SEDIMENT FILTER
- TEMPORARY BRUSH SEDIMENT BARRIERS
- SANDBAG BARRIERS
- TEMPORARY STREAM CROSSINGS

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

MAINTENANCE AND INSPECTION:
ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ESTABLISHED. INSPECTION BY THE CONTRACTOR AND ANY NECESSARY REPAIRS SHALL BE PERFORMED EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH AS RECORDED BY A NON-FREEZING RAINGUAGE TO BE LOCATED ON SITE. POTENTIALLY EROABLE AREAS, DRAINAGeways, MATERIAL STORAGE, STRUCTURAL DEVICES, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

WASTE MATERIALS:
PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILES, SURPLUS, DESIRS AND ALL OTHER BY-PRODUCTS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIAL HANDLING, SPILL PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

HAZARDOUS MATERIALS:
PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURERS RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXAMPLES INCLUDE BUT ARE NOT LIMITED TO: PAINTS, AGRIC. CLEANING SOLUTIONS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOILS.

GENERAL NOTES:
A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED TO COMPLY WITH THE OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. THIS PLAN IS INITIATED DURING THE DESIGN PHASE AND CONFIRMED IN THE PRE-CONSTRUCTION MEETINGS AND IN THE QUALITY ASSURANCE/QC DOCUMENTS. THE PROJECT MUST BE SUBMITTED CURRENT WITH UP-TO-DATE AMENDMENTS DURING THE PROGRESS OF THE PROJECT. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP. E.G. SORBION PITS, DUMP ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER MANAGEMENT IS TO IMPROVE WATER QUALITY BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES. RUNOFF FROM CONSTRUCTION SITES HAS A POTENTIAL FOR POLLUTION DUE TO EXPOSED SOILS AND THE PRESENCE OF HAZARDOUS MATERIALS USED IN THE CONSTRUCTION PROCESS. THE PREVENTION OF SOIL EROSION, CONTAINMENT OF HAZARDOUS MATERIALS AND THE INTERCEPTION OF LOVE LITIGATION BY PLAN BEFORE LEAVING THE CONSTRUCTION SITE ARE THE BEST PRACTICES FOR CONTROLLING STORM WATER POLLUTION.

THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:
103.05 BONDING REQUIREMENTS
104.10 FINAL CLEANUP
104.12 CONTRACTORS RESPONSIBILITY FOR WORK
104.13 ENVIRONMENTAL PROTECTION
105.06 STORAGE AND HANDLING OF MATERIAL
107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
107.20 STORM WATER MANAGEMENT
220 MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION AND CONTROL
221 TEMPORARY SEDIMENT CONTROL

IN ADDITION: "VIDEO GENERAL PERMIT (VR01) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA."

OODE, WATER QUALITY DIVISION, SEPTEMBER 13, 2017

REVISED 08/18/2017

STORM WATER MANAGEMENT PLAN
PROJECT #173120-1021-126335
DAMAGE 331103
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT

STORM WATER MANAGEMENT PLAN
PROJECT #173120-1021-126335
DAMAGE 331103
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT
STORM WATER MANAGEMENT PLAN
PROJECT #173120-1021-126335
DAMAGE 331103
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT
CONSTRUCTION NOTES:
SITE 172 (36.09760, -95.98490)
BACKFILL 622 CY OF UNCLASSIFIED FILL, 70 FT LONG, X 60 FT WIDE X 4 FT DEEP, SURFACE WATER FLOODING ERODED SOIL.

STORM DRAIN, CULVERT END SECTION (CONCRETE), 6 FT LONG X 30 IN IN DIAMETER, SURFACE WATER FLOODING DETACHED PIPE EXTENSION.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>20020</td>
<td>UNCLASSIFIED BORROW</td>
<td>CY</td>
<td>927.00</td>
<td></td>
</tr>
<tr>
<td>20988</td>
<td>SOLID SLAB SODDING</td>
<td>6' X 0.33</td>
<td>SY</td>
<td>467.00</td>
</tr>
<tr>
<td>30490</td>
<td>GEORED REINFORCEMENT</td>
<td>SY</td>
<td>455.00</td>
<td></td>
</tr>
<tr>
<td>60125</td>
<td>TYPE I PLAIN RIPRAP</td>
<td>CY</td>
<td>76.00</td>
<td></td>
</tr>
<tr>
<td>63681</td>
<td>(1' DIAM, 1' PLAIN RIPRAP)</td>
<td>EA</td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

HAZARD MITIGATION PROPOSAL (HMP) SCOPE OF WORK:
• ADDING 74.15 CY RIP RAP TO MITIGATE DAMAGE FROM RAPIDLY FLOWING FLOOD WATERS.
• ADDING 450 SY GEOSYNTHETIC FABRIC TO PREVENT EROSION CAUSED BY RAPIDLY FLOWING FLOOD WATERS.

HMP SCOPE NOTE:
1. THE MITIGATION PROPOSAL ESTIMATES WERE GENERATED USING RS MEANS.

RIPRAP INSTALLATION
SCALE: NONE
12/16/2020

SITE PHOTO

LEGEND
FEMA SITE AREA

OKIE 811
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT
PLANS AND SPECIFICATIONS PREPARED BY
Meshek & Associates, L.L.C.

FEMA SITE 172
PROJECT #175120-1021-126333
DAMAGE # 331103
CONSTRUCTION NOTES:
SITE 173 (36.08930, -95.98490)
STORM DRAIN, 1 CY OF CONCRETE APRON, 9 FT LONG X 5 FT WIDE X 6 IN DEEP, SURFACE WATER FLOODING CRACKED APRON.

SITE LOCATION
SITE 173

LOCATION MAP

SITE 173

SITE PHOTO

SITE PHOTO

10/16/2020

LEGEND
FEMA SITE AREA

FEMA SITE 173
PROJECT #173120-T021-126333
DAMAGE # 331103
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLAN AND ENGINEERING PREPARED BY
Weehak & Associates, L.L.C.
3939 S. Harwood, Suite 1200, OKC, OK 73119
(405) 848-0281

REV CHECK
DRAFT
DATE
2020.02.02

OKIE 811
CITY OF TULSA, OKLAHOMA
PLANNED UTILITIES & INFRASTRUCTURE
FEMA SITE 173
PROJECT #173120-T021-126333
DAMAGE # 331103
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLAN AND ENGINEERING PREPARED BY
Weehak & Associates, L.L.C.
3939 S. Harwood, Suite 1200, OKC, OK 73119
(405) 848-0281

OKIE 811
CITY OF TULSA, OKLAHOMA
PLANNED UTILITIES & INFRASTRUCTURE
FEMA SITE 173
PROJECT #173120-T021-126333
DAMAGE # 331103
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT
CONSTRUCTION NOTES:
SITE 188 (36.08720, -95.98480)
STORM DRAIN, 4 CY OF CONCRETE APRON,
20 FT LONG X 12 FT WIDE X 6IN DEEP,
SURFACE WATER FLOODING CRACKED APRON.

SITE PHOTO

SITE LOCATION
SITE 188

SITE 188

LOCATION MAP

1.0% ANNUAL CHANCE FLOOD HAZARD

PROJECT SITE LOCATION

REGULATORY FLOODWAY

RIVER PLAIN TRAIL
RIVER PLAIN TRAIL

RIVER EDGE SOUTH BOUND
RIVER EDGE NORTH BOUND

SITE 188 SEE CONSTRUCTION NOTES

SITE 188

SITE 188 - RAY QUANTITIES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>300031</td>
<td>0025</td>
<td>CLASS C CONCRETE</td>
<td></td>
<td>1.0</td>
</tr>
</tbody>
</table>

LEGEND

FEMA SITE AREA

FEMA SITE 188

PROJECT #173120-1021-12633

DAMAGE # 331103

OKIE 811

PLANS AND SPECIFICATIONS PREPARED BY:
Meshbeck & Associates, LLC

1140 S. State St., Suite 100
Tulsa, OK 74129

1-512-654-7212 - 888-819-7111 - 810-654-7212

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

DRAWN: 12/16/2020

MAP SCALE: 1" = 250'
CONSTRUCTION NOTES:
SITE 414 (36.09710, -95.98450)

STORM DRAIN, RCP, 25 FT LONG X 15IN IN DIAMETER, SURFACE WATER FLOODING CAUSED PIPE SEPARATIONS.
CONSTRUCTION NOTES:
SITE 423 (36.09760 -95.98485 TO 36.09749, -95.98318)
STORM DRAIN, RCP, 50FT LONG X 30IN IN DIAMETER,
SURFACE WATER FLOODING CAUSED PIPE SEPARATIONS.
CONSTRUCTION NOTES:
SITE 424 (36.09755, -95.98475)

STORM DRAIN, RCP, 30FT LONG X 30IN IN DIAMETER, SURFACE WATER FLOODING CAUSED PIPE SEPARATIONS.

ROADWAY ISSUE

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002X</td>
<td>2006X</td>
<td>SLOW SLAB SLOWING</td>
<td>100%</td>
<td>SL</td>
</tr>
<tr>
<td>65.266</td>
<td>0483</td>
<td>RCP R/C PIPE CLASS 3 COMPLETE IN PLACE</td>
<td>0-3.15, L3 L2</td>
<td>LF</td>
</tr>
<tr>
<td>SPECIAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SITE 424 - PAY QUANTITIES

LEGEND

FEMA SITE AREA

FEMA SITE 424

PROJECT #175120-1021-128335
DAMAGE #: 331103

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

MONHEK & ASSOCIATES, L.L.C.

DATE: 12/16/2000

OKIE 811

SIGNATURES:

OKIE 811 / J. H. BOWMAN

PROJECT MANAGER / J. H. BOWMAN

OKIE 811 / J. H. BOWMAN

PERC MANAGER / J. H. BOWMAN

MONHEK & ASSOCIATES, L.L.C.

APPROVED:

MONHEK & ASSOCIATES, L.L.C.

OKIE 811 / J. H. BOWMAN
STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION


PROJECT DESCRIPTION:

SITE 177: EROSION CONTROL AND CULVERT END SECTION (REMOVAL AND REPLACE)
SITE 188: EROSION CONTROL
SITE 369: EROSION CONTROL
SITE 372: EROSION CONTROL
SITE 405: EROSION CONTROL & REPLACE PIPE

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:
1. TEMPORARY EROSION CONTROL
2. PERMANENT EROSION CONTROL

SOIL STABILIZATION PRACTICES:

- X: TEMPORARY SEEDING
- X: PERMANENT SODDING, SPRIGGING OR SEEDING
- X: VEGETATIVE MULCHING
- X: SOIL RETENTION BLANKET
- X: PRESERVATION OF EXISTING VEGETATION

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

EROSION AND SEDIMENT CONTROLS

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

MAINTENANCE AND INSPECTION:
ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ERECTED. INSPECTION BY THE CONTRACTOR AND ANY NECESSARY REPAIRS SHALL BE PERFORMED ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH AS RECORD BY A NON-FREEZING RAIN GAUGE TO BE LOCATED ON SITE. POTENTIALLY ERODIBLE AREAS, DRAINAGEWAYS, MATERIAL STORAGE, STRUCTURAL DEVICES, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

WASTE MATERIALS:
PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILES, SURPLUS, DEBRIS, AND ALL OTHER BY-PRODUCTS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIALS HANDLING, SPOOL PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

HAZARDOUS MATERIALS:
PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURER'S RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXAMPLES INCLUDE BUT ARE NOT LIMITED TO: PAINTS, ACIDS, CLEANING SOLVENTS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOILS.

GENERAL NOTES:
A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED TO COMPLY WITH THE OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. THIS PLAN IS INITIATED DURING THE DESIGN PHASE, CONFIRMED IN THE PRE-WORK MEETINGS AND AVAILABLE ON THE JOB SITE ALONG WITH COPIES OF THE NOTICE OF INTENT TO PERMIT. PERMIT CERTIFICATES THAT HAVE BEEN FILED WITH THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ). THE PLAN MUST BE KEPT CURRENT WITH UP-TO-DATE AMENDMENTS DURING THE PROGRESSION OF THE PROJECT. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP. I.E., BORROW PITS, WORK AREAS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER MANAGEMENT IS TO IMPROVE WATER QUALITY BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES. RUNOFF FROM CONSTRUCTION SITES HAS A POTENTIAL FOR POLLUTION DUE TO EXPOSED SOILS AND THE PRESENCE OF HAZARDOUS MATERIALS USED IN THE CONSTRUCTION PROCESS. THE PREVENTION OF SOIL EROSION, CONTAMINATION OF HAZARDOUS MATERIALS AND THE INTERCEPTION OF THESE POLLUTANTS BEFORE LEAVING THE CONSTRUCTION SITE ARE THE BEST PRACTICES FOR CONTROLLING STORM WATER POLLUTION.

THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:

103.05 Bonding Requirements
104.10 Final Cleaning Up
104.13 Contractors Responsibility for Work
104.13 Environmental Protection
106.08 Storage and Handling of Material
107.01 Laws, Rules and Regulations to be Observed
107.20 Storm Water Management
220.01 Management of Erosion, Sedimentation and Storm Water Pollution Prevention and Control
221.01 Temporary Sediment Control

IN ADDITION:
"ODEQ GENERAL PERMIT (ORR10) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA" ODEQ WATER QUALITY DIVISION, SEPTEMBER 13, 2017.

STORM WATER MANAGEMENT PLAN
PROJECT #: 173120-1021-128333
DAMAGE #: 331108

CITY OF TULSA, OKLAHOMA

PLANS AND SPECIFICATIONS PREPARED BY:
WIMBERLY & ASSOCIATES, LLC

REVISION STATEMENT:
REVISED: 08/19/2017
CONSTRUCTION NOTES:
SITE 177 (36.12340, -95.98680)
CULVERT, 18 IN DIAMETER PREFABRICATED CURLVERT
END SECTION, 6 FT LONG, PIPE UNDERMINED/BROKEN FROM SOIL LOSS.
BACKFILL, 9 CY OF UNCLASSIFIED FILL, 10FT LONG X
5FT WIDE X 5FT DEEP, SURFACE WATER FLOODING
ERODED SOIL ON BANK.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>A171</td>
<td>UNCLASSIFIED</td>
<td>1CY</td>
<td>CUB</td>
<td>9.00</td>
</tr>
<tr>
<td>6133</td>
<td>570</td>
<td>1SF PROFAB. CULVERT END SECTION, ROUN</td>
<td>LA</td>
<td>1.00</td>
</tr>
</tbody>
</table>
CONSTRUCTION NOTES:
SITE 198 (36.11260, -95.98460)
BACKFILL, 50 CY OF UNCLASSIFIED FILL, 30 FT LONG X 15 FT WIDE X 3 FT DEEP, SURFACE WATER FLOODING ERODED SOIL.
STONE, 33 CY OF RIP-RAP, 30 FT LONG X 15 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING DISPLACED STONE.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>28227</td>
<td>0184 UNCLASSIFIED BORROW</td>
<td>CY</td>
<td>50.00</td>
<td></td>
</tr>
<tr>
<td>28404</td>
<td>0814 OLD SLAB RODDING</td>
<td>0-11.11</td>
<td>ST</td>
<td>50.00</td>
</tr>
<tr>
<td>38282</td>
<td>0530 TYPE 3A PLAIN RIP-RAP</td>
<td>CY</td>
<td>33.00</td>
<td></td>
</tr>
<tr>
<td>24170</td>
<td>0727 REMOVAL OF SEDIMENT</td>
<td>CY</td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>
CONSTRUCTION NOTES:
SITE 369 (36.12670, -95.98740)
BACKFILL, 28 CY OF UNCLASSIFIED FILL, 50 FT LONG X 25 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL ON BANK.

<table>
<thead>
<tr>
<th>ROADWAY 0330</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>230020</td>
<td>UNCLASSIFIED DIRT</td>
<td>CY</td>
<td>28.00</td>
<td></td>
</tr>
<tr>
<td>230020</td>
<td>SOLID SLAB STORM</td>
<td>S/O-3.13</td>
<td>YD</td>
<td>139.00</td>
</tr>
</tbody>
</table>

SITE LOCATION
SITE 369

LOCATION MAP

SITE 369

TRANSMISSION OF THIS SHEET IN PART OR IN WHOLE IS PROHIBITED WITHOUT WRITTEN PERMISSION FROM ENGINEER蒐集. FOR FURTHER INFORMATION CONTACT JASON SIMPSON, PE, ENGINEER AT 918-744-7260. THIS SHEET IS CHECKED BY ANOKIE, INC. PE AND IS ACCEPTED FOR FEDERAL PURPOSES. THIS SHEET IS ACCEPTED FOR FEDERAL PURPOSES. THIS SHEET IS ACCEPTED FOR FEDERAL PURPOSES.

FEMA SITE 369

PROJECT #173120-1021-126333
DAMAGE #331108

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND SPECIFICATIONS PREPARED BY: Meshbek & Associates, L.L.C.

OKIE 811
COUNTY 911

LEGEND
FEMA SITE AREA

THE GATHERING PLACE

ARMAOAS RIVER

REGULATORY FLOODWAY

0.25% ANNUAL CHANCE FLOOD HAZARD

1.00% ANNUAL CHANCE FLOOD HAZARD

S. BOSTON AVE

E 26TH PL S

0 20 40 60 SCALE IN FT

S. BOSTON AVE

E 26TH PL S

ARMAOAS RIVER

REGULATORY FLOODWAY

0.25% ANNUAL CHANCE FLOOD HAZARD

1.00% ANNUAL CHANCE FLOOD HAZARD

SITE 369 SEE CONSTRUCTION NOTES

SITE 369

PROJECT SITE LOCATION

THE GATHERING PLACE
CONSTRUCTION NOTES:
SITE 372 (36.13100, -95.98920)
BACKFILL, 34 CY OF UNCLASSIFIED FILL, 50 FT LONG X 6 FT WIDE X 3 FT DEEP, SURFACE WATER FLOODING ERODED SOIL ON BANK.

HAZARD MITIGATION PROPOSAL (HMP) SCOPE OF WORK:
- ADDING 4.24 CY RIPP RAP TO MITIGATE DAMAGE FROM RAPIDLY FLOWING FLOOD WATERS.
- ADDING 25 SY GEOSYNTHETIC FABRIC TO PREVENT EROSION CAUSED BY RAPIDLY FLOWING FLOOD WATERS.

SITE 372 - LOCATION MAP

LOCATION MAP

SITE 372 - SITE PHOTO

FEMA SITE 372
PROJECT #128333
DAMAGE # 331108
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT

PLAINTROP DRAWN PREPARED BY: Wheeler & Associates, L.L.C.
1141 S. Hova Rd., Ste. 200, Tulsa, OK 74105

PAGE 2 OF 3
CONSTRUCTION NOTES:
SITE 377 (36.12740, -95.98760)
BACKFILL, 93 CY OF UNCLASSIFIED FILL, 50 FT LONG X 10 FT WIDE X 5 FT DEEP, SURFACE WATER FLOODING ERODED SOIL ON BANK.

SITE PHOTO

SITE 377 - PAY QUANTITIES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>23201.00</td>
<td>05-04 UNCLASSIFIED SOD</td>
<td>CV</td>
<td>56.00</td>
<td>56.00</td>
</tr>
<tr>
<td>23001</td>
<td>24006 SLAB SLAB SLAB SLAB</td>
<td>C10-11</td>
<td>SY</td>
<td>56.00</td>
</tr>
</tbody>
</table>

LOCATION MAP
CONSTRUCTION NOTES:
SITE 405 (36.11300, -95.98450)

BACKFILL, 15 CY OF UNCLASSIFIED FILL, 20 FT LONG X 10 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL OF PIPE OUTLET.

STORM DRAIN, 1 EACH OF CONCRETE OUTFALL, 52 FT LONG X 30 IN IN DIAMETER, SURFACE WATER FLOODING COLLAPSED SECTION OF PIPE.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>202301</td>
<td>UNCLASSIFIED BORROW</td>
<td>06.00</td>
<td>CY</td>
<td>15.00</td>
</tr>
<tr>
<td>208940</td>
<td>SOLID SUB SOIL</td>
<td>0.45.00</td>
<td>YD</td>
<td>14.00</td>
</tr>
<tr>
<td>033959</td>
<td>00062 PIPE CLASS III (COMPLETE IN PLACE)</td>
<td>0-10.33</td>
<td>YD</td>
<td>7.00</td>
</tr>
<tr>
<td>033959</td>
<td>00062 PIPE CLASS III (COMPLETE IN PLACE)</td>
<td>0-10.33</td>
<td>CY</td>
<td>52.00</td>
</tr>
<tr>
<td>SPECIAL</td>
<td>TYPE APC PATCH (NON-ARTERIAL)</td>
<td>0-25</td>
<td>CY</td>
<td>16.00</td>
</tr>
</tbody>
</table>

SITE 405 - CUT AND REPAIR (NON-ARTERIAL)

FEMA SITE 405

FEMA SITE AREA

LEGEND:

PROJECT #1735120-1021-128335
DAMAGE # 331108
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT
PLANS AND SPECIFICATIONS PREPARED BY:
Menchik & Associates, LLC

CONFIDENTIAL CONFIDENTIAL CONFIDENTIAL

OKIE 811
STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION

PROJECT LIMITS: DAMAGE INVENTORY #331113 SITES ALONG THE EAST SIDE OF THE ARKANSAS RIVER INCLUDING SITE 158, SITE 160, SITE 205, SITE 305, SITE 310, SITE 311 AND SITE 397, ALL APPROXIMATELY LOCATED IN THE S 6/4 A OF SECTION 25, T 41S, R 12 E., WITHIN THE CITY LIMITS OF TULSA, OKLAHOMA.

PROJECT DESCRIPTION:
SITE 397: REMOVAL OF SEDIMENT
SITE 162: EROSION CONTROL AND CLAVERT END SECTION (REMOVE AND REPLACE)
SITE 204: EROSION CONTROL AND CLAVERT END SECTION (REMOVE AND REPLACE)
SITE 205: REPLACE PIPE
SITE 233: REMOVE PIPE AND CLAVERT END SECTION
SITE 311: REPLACE PIPE AND CLAVERT END SECTION

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:
1. TEMPORARY EROSION CONTROL
2. PERMANENT EROSION CONTROL

SOIL STABILIZATION PRACTICES:
- TEMPORARY SEEDING
- PERMANENT SEEDING, SPRIGGING OR SEEDING
- VEGETATIVE MULCHING
- SOIL RETENTION BAND
- PRESERVATION OF EXISTING VEGETATION

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:
- STABILIZED CONSTRUCTION EXIT
- TEMPORARY SILT FENCE
- TEMPORARY SILT DIES
- TEMPOARY FIBER LOG
- DIVERSION, INTERCEPTOR OR PERIMETER DIES
- DIVERSION, INTERCEPTOR OR PERIMETER SWALES
- ROCK FILTER DAMS
- TEMPORARY SLOPE DRAIN
- PAVED DITCH W/ DITCH LINER PROTECTION
- TEMPORARY DIVERSION CHANNELS
- TEMPORARY SEDIMENT BASINS
- TEMPORARY SEDIMENT TRAPS
- TEMPORARY SEDIMENT FILTERS
- TEMPORARY SEDIMENT REMOVAL
- R/F RAP
- INLET SEDIMENT FILTER
- TEMPORARY BRUSH SEDIMENT BARRIERS
- SANDBAGS
- TEMPORARY STREAM CROSSINGS

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

MAINTENANCE AND INSPECTION:
ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ESTABLISHED. INSPECTION BY THE CONTRACTOR AND ANY NECESSARY REPAIRS SHALL BE PERFORMED ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH AS RECORDED BY A NON-FREEZING RAIN GAUGE TO BE LOCATED WITHIN THE PROJECT AREA, PLUS POTENTIALLY ERODIBLE AREAS. DRAINAGEWAYS, MATERIAL STORAGE, STRUCTURAL DEVICES, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

WASTE MATERIALS:
PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIALS IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILE, SURPLUS, DEBRIS AND ALL OTHER BY-PRODUCTS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIAL HANDLING, SPILL PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

HAZARDOUS MATERIALS:
PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURERS RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXAMPLES INCLUDE BUT ARE NOT LIMITED TO: PAINTS, ACOID, CLEANING SOLVENTS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOLIDS.

GENERAL NOTES:
A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED TO COMPLY WITH THE OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (COPED) REGULATIONS. THIS PLAN IS INITIATED DURING THE DESIGN PHASE, CONFIRMED IN THE PRE-WORK MEETINGS AND AVAILABLE ON THE JOB SITE ALONG WITH COPIES OF THE NOTICE OF INTENT (NOI) FORM AND PERMIT CERTIFICATE THAT HAVE BEEN FILED WITH THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (DOEQ). THE PLAN MUST BE KEPT CURRENT WITH UP-TO-DATE AMENDMENTS DURING THE PROGRESSION OF THE PROJECT. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP. I.E. BORROW SITES, WORK ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER MANAGEMENT IS TO IMPROVE WATER QUALITY IN LOCAL RECEIVING WATERS. THE PLAN IS DEVELOPED TO PREVENT THE POLLUTION OF RECEIVING WATERS. THE PROJECT HAS A POTENTIAL FOR POLLUTION DUE TO EXPOSED SOLIDS AND THE PRESENCE OF HAZARDOUS MATERIALS USED IN THE CONSTRUCTION PROCESS. THE PREVENTION OF SOIL EROSION, CONTAMINATION OF HAZARDOUS MATERIALS AND/OR THE INTERCEPTION OF THESE POLLUTANTS BEFORE LEAVING THE CONSTRUCTION SITE ARE THE BEST PRACTICES FOR CONTROLLING STORM WATER POLLUTION.

THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:
103.05 Bonding Requirements
104.10 Final Cleaning Up
104.12 Contractors Responsibility for Work
104.13 Environmental Protection
198.08 Storage and Handling of Material
107.01 Laws, Rules and Regulations to Be Observed
107.20 Storm Water Management
200 Management of Erosion, Sedimentation and Storm Water Pollution Prevention and Control
221 Temporary Sediment Control

IN ADDITION:
"CDDG EMERGENCY PERMIT (OKD) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA" ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2017.

NOTES:

NAME OF RECEIVING WATERS:
ARKANSAS RIVER

SENSITIVE WATERS OR WATERSHEDS:
YES NO

303 IMPAIRED WATERS:
YES X NO

IF YES, LIST IMPAIRMENT:
CALCITRUM

LOCATED IN A TMDL:
YES X NO

LAKE TUNDHERB MDL:
YES X NO

MS 4 ENTITY:
YES X NO

IF YES, LOCATION:
TULSA COUNTY

NOTE:
THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT ILLUSTRATES THE DRAINAGE PATTERNS INTO STREAMS AND RECEIVING WATERS FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES.

REVISED 08/18/2017
CONSTRUCTION NOTES:
SITE 182 (36.09580, -95.98500)

CULVERT, 1 EACH OF RCP END SECTION, 8 FT LONG X 42 IN WIDE, SURFACE WATER FLOODING CAUSED PIPE SEPARATION.

BACKFILL, 26 CY OF UNCLASSIFIED FILL, 35 FT LONG X 10 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL.

STONE, 3 CY OF RIP-RAP, 7 FT LONG X 6 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING DISPLACED STONE.

SITE LOCATION
SITE 182

LOCATION MAP

SITE 182

SITE PHOTO

SITE PHOTO

FEMA SITE 182

PROJECT #175120-1021-126333
DAMAGE #: 331113

CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT

PLANS AND CONTRACTS PREPARED BY: Meshback & Associates, LLC

OKIE811

CONTRACTOR

PROJECT NO.

DAMAGE

FEMA SITE 182

1ST RF

OKIE 811

PLM NO.

FEMA SITE 182
CONSTRUCTION NOTES:
SITE 204 (36.09500, -95.98490)

CULVERT, 1 EACH OF RCP, 50 FT LONG X 15IN IN DIAMETER, SURFACE WATER FLOODING CAUSED PIPE SEPARATION.

BACKFILL, 1 CY OF UNCLASSIFIED FILL, 4 FT LONG X 3 FT WIDE X 1 FT DEEP, SURFACE WATER FLOODING ERODED SOIL.

STONE, 2 CY OF RIP--RAP, 5 FT LONG X 5 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING DISPLACED STONE.

SITE 204 - PAY QUANTITIES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2920A</td>
<td>0136</td>
<td>UNCLASSIFIED BORROW</td>
<td>CY</td>
<td>3.00</td>
</tr>
<tr>
<td>2920A</td>
<td>2800</td>
<td>SODDING</td>
<td>CY</td>
<td>13.00</td>
</tr>
<tr>
<td>6013</td>
<td>0136</td>
<td>TYPE 3A PLAN RIP RAP</td>
<td>CY</td>
<td>2.00</td>
</tr>
<tr>
<td>6103</td>
<td>0403</td>
<td>276A TYPE II PIPE CLAY (COMPLETE IN PLACE)</td>
<td>LF</td>
<td>50.00</td>
</tr>
<tr>
<td>SPECIAL</td>
<td>TYPE 1 ARC PATCH (NON-ARTERIAL)</td>
<td>SF</td>
<td>37.00</td>
<td></td>
</tr>
</tbody>
</table>

SITE PHOTO

EXISTING GROUND FINISH GRADE

RIPRAPH INSTALLATION

SCALE: NONE

LEGEND

FEMA SITE AREA

FEMA SITE 204

PROJECT #175210-021-126335

DAMAGE # 33113

CITY OF TULSA, OKLAHOMA

ENGINEERING SERVICES DEPARTMENT

OKIE 811

WEBBER & ASSOCIATES, LLC
CONSTRUCTION NOTES
SITE 415 (36.11190, -95.98430)

STORM DRAIN, RCP 50 FT LONG 18IN IN DIA, SURFACE WATER FLOODING CAUSED SEPARATION TO SECTIONS OF PIPE.

ROADWAY SUB

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2210A</td>
<td>200FT SOLID SLAB DOIING</td>
<td>0-50.11</td>
<td>SF</td>
<td>14.00</td>
</tr>
<tr>
<td>6121(3)</td>
<td>2CFT K C PIPE CLASS II (COMPLETE IN PLACE)</td>
<td>0-4.23.15</td>
<td>LF</td>
<td>50.00</td>
</tr>
<tr>
<td>SPECIAL</td>
<td>TYPE APC PATCH (NON-ARTERIAL)</td>
<td>5.21</td>
<td>SF</td>
<td>13.00</td>
</tr>
</tbody>
</table>

SITE 415 - Pay Quantities

LOCATION MAP

SITE LOCATION

SITE 415

FEMA SITE 415

PROJECT #175120-1021-126333

DAMAGE # 331153

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLAN AND DETAILS PREPARED BY: Menbeck & Associates, LLC

OKIE 811

LEGEND

FEMA SITE AREA

1. TYPE I APC CUT AND REPAIR (NON-ARTERIAL)

Scale: None

Regulatory Floodway

River Park Trails

Project Site Location

E 35TH ST S

E 36TH PL S

RIVER PARK TRAILS

RIVER PARK TRAILS

E 35TH PL S

1.00% ANNUAL CHANGE FLOOD HAZARD

SITE 415 SITE

CONSTRUCTION NOTES

1.00% ANNUAL CHANGE FLOOD HAZARD

SITE 415 (36.11190, -95.98430)

STORM DRAIN, RCP 50 FT LONG 18IN IN DIA, SURFACE WATER FLOODING CAUSED SEPARATION TO SECTIONS OF PIPE.

ROADWAY SUB

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2210A</td>
<td>200FT SOLID SLAB DOIING</td>
<td>0-50.11</td>
<td>SF</td>
<td>14.00</td>
</tr>
<tr>
<td>6121(3)</td>
<td>2CFT K C PIPE CLASS II (COMPLETE IN PLACE)</td>
<td>0-4.23.15</td>
<td>LF</td>
<td>50.00</td>
</tr>
<tr>
<td>SPECIAL</td>
<td>TYPE APC PATCH (NON-ARTERIAL)</td>
<td>5.21</td>
<td>SF</td>
<td>13.00</td>
</tr>
</tbody>
</table>

SITE 415 - Pay Quantities

LOCATION MAP

SITE LOCATION

SITE 415

FEMA SITE 415

PROJECT #175120-1021-126333

DAMAGE # 331153

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLAN AND DETAILS PREPARED BY: Menbeck & Associates, LLC

OKIE 811

LEGEND

FEMA SITE AREA

1. TYPE I APC CUT AND REPAIR (NON-ARTERIAL)

Scale: None

Regulatory Floodway

River Park Trails

Project Site Location

E 35TH ST S

E 36TH PL S

RIVER PARK TRAILS

RIVER PARK TRAILS

E 35TH PL S

1.00% ANNUAL CHANGE FLOOD HAZARD

SITE 415 SITE

CONSTRUCTION NOTES

1.00% ANNUAL CHANGE FLOOD HAZARD

SITE 415 (36.11190, -95.98430)

STORM DRAIN, RCP 50 FT LONG 18IN IN DIA, SURFACE WATER FLOODING CAUSED SEPARATION TO SECTIONS OF PIPE.

ROADWAY SUB

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2210A</td>
<td>200FT SOLID SLAB DOIING</td>
<td>0-50.11</td>
<td>SF</td>
<td>14.00</td>
</tr>
<tr>
<td>6121(3)</td>
<td>2CFT K C PIPE CLASS II (COMPLETE IN PLACE)</td>
<td>0-4.23.15</td>
<td>LF</td>
<td>50.00</td>
</tr>
<tr>
<td>SPECIAL</td>
<td>TYPE APC PATCH (NON-ARTERIAL)</td>
<td>5.21</td>
<td>SF</td>
<td>13.00</td>
</tr>
</tbody>
</table>
CONSTRUCTION NOTES:
SITE 205 (36.09430, -95.98490)
CULVERT, 1 EACH OF RCP, 25 FT LONG X 15IN IN DIAMETER, SURFACE WATER FLOODING CAUSED PIPE SEPARATION.
CONSTRUCTION NOTES:
SITE 233 (36.09610, -95.98500)

CULVERT, 2 CY OF SEDIMENT REMOVAL INSIDE RCP 
(DEBRIS IN PIPE — NO PIPE DAMAGE), 60 FT LONG 
X 1 FT WIDE X 1 FT DEEP, SURFACE WATER 
FLOODING DEPOSITED DEBRIS IN PIPE.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2220</td>
<td>DESS</td>
<td>REMOVAL OF SEDIMENT</td>
<td>CY</td>
<td>2.00</td>
</tr>
</tbody>
</table>

SCOPE NOTE:
1. EXTRACTED SILT THAT CANNOT BE REUSED ON-SITE WILL 
BE DISPOSED AT THE C & D LANDFILL LOCATED AT 
13013 W HWY 266, TULSA, OK 74146, WITH THE GPS 
COORDINATE 36.219536,-95.9308182 (SOLID WASTE PERMIT 
NO. 2072042). IF THE SILT DESTINATION CHANGES, THE 
APPLICANT MUST NOTIFY FEMA AND THE RECIPIENT PRIOR 
TO DELIVERING TO THE NEW LOCATION.
CONSTRUCTION NOTES:
SITE 391 (36.09560, -95.98490)

CULVERT, 1 EACH OF RCP END SECTION, 6 FT LONG X 42IN IN DIAMETER, SURFACE WATER FLOODING CAUSED PIPE SEPARATION.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>11840</td>
<td>POLY SLAB 3000</td>
<td>0-0.13, 13</td>
<td>2F</td>
<td>1.00</td>
</tr>
<tr>
<td>41748</td>
<td>90° RCP/PIPE</td>
<td>0-0.13, 13</td>
<td>LF</td>
<td>0.00</td>
</tr>
<tr>
<td>41581</td>
<td>90° PIPE</td>
<td>90° PIPE CULVERT END SECTION</td>
<td>EA</td>
<td>0.00</td>
</tr>
</tbody>
</table>
CONSTRUCTION NOTES:
SITE 397 (36.09570, -95.98420)

CULVERT, 4 CY OF SEDIMENT REMOVAL INSIDE RCP, 100 FT LONG X 2 FT WIDE X 6 IN DEEP, SURFACE WATER FLOODING DEPOSITED DEBRIS IN PIPE.

SITE LOCATION
SITE 397

LEGEND
FEMA SITE AREA

SCOPE NOTE:
1. EXTRACTED SILT THAT CANNOT BE REUSED ON SITE WILL BE DISPOSED AT THE C & D LANDFILL LOCATED AT 13012 OK HWY 265, TULSA, OK 74146, WITH THE GPS COORDINATE 36.219558, -95.830182 (SOLID WASTE PERMIT NO. 3572034). IF THE SILT DESTINATION CHANGES, THE APPLICANT MUST NOTIFY FEMA AND THE RECIPIENT PRIOR TO DELIVERING TO THE NEW LOCATION.
STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION

PROJECT LIMITS: DAMAGE INVENTORY #351114 SITES ALONG THE EAST SIDE OF THE ARKANSAS RIVER INCLUDING, SITE 156, SITE 234, AND SITE 416, ALL APPROXIMATELY LOCATED IN THE SEA OF SECTION 24, OF T39N R12E W4TH THE CITY LIMITS OF TULSA, OKLAHOMA.

PROJECT DESCRIPTION:

SITE 156, EROSION CONTROL
SITE 234, REPLACE PIPE
SITE 416, EROSION CONTROL, REPLACE PIPE AND CULVERT END SECTION

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:

1. TEMPORARY EROSION CONTROL
2. PERMANENT EROSION CONTROL

SOIL STABILIZATION PRACTICES:

- SEEDING
- PERMANENT SEEDING, SPREADING OR SEEDING
- VEGETATIVE MULCHING
- VEGETATIVE SHIELDING
- SOIL RETENTION BLANKET
- PRESERVATION OF EXISTING VEGETATION

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

- STABILIZED CONSTRUCTION EMBANKMENT
- TEMPORARY SILT FENCE
- TEMPORARY SILT DIKES
- TEMPORARY SILT Diked
- TEMPORARY SEDIMENT BARRIER
- TEMPORARY SEDIMENT TRAPS
- TEMPORARY SEDIMENT FILTERS
- TEMPORARY SEDIMENT REMOVAL
- RIP RAP
- INLET FILTER REMOVAL
- INLET FILTER BACKFILL
- INLET FILTER MULCHING
- INLET FILTER SHIELDING
- INLET FILTER BARRIERS
- TEMPORARY STREAM CROSSINGS

OFFSITE VEHICLE TRACKING:

- HAUL ROADS DAMPENED FOR DUST CONTROL
- LOADED HAUL TRUCKS TO BE COVERED WITH TARPALIN
- EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

MAINTENANCE AND INSPECTION:

ALL EROSION AND SEDIMENT CONTROLS MUST BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE EROSION COVER IS ESTABLISHED. INSPECTION BY THE CONTRACTOR AND THE NECESSARY REPAIRS SHALL BE PERFORMED ONCE EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATERTHAN 0.5 INCH AS RECORDED BY A NON-FREEZING RAIN GAUGE TO BE LOCATED AT OR NEAR THE POTENTIALLY ERODIBLE AREAS. MAINTENANCE OF MATERIAL STORAGE, STRUCTURAL CONTROL, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

WASTE MATERIALS:

PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILES, SURPLUS, DEBRIS, AND ALL OTHER MATERIALS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIALS HANDLING, SPILL PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

HAZARDOUS MATERIALS:

PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURER'S RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXHAUSTS INCLUDE BUT ARE NOT LIMITED TO PAINTS, ACRIDS, CLEANING SOLVENTS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOILS.

GENERAL NOTES:

A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED TO COMPLY WITH THE ARKANSAS POLLUTION DISCHARGE ELIMINATION SYSTEM (PDES) REGULATIONS. THIS PLAN IS INITIATED DURING THE DESIGN PHASE CONFIRMED OR REVIEWED AS PART OF THE CONTRACT DOCUMENTS WHERE APPROPRIATE. THE Plan MUST BE KEPT CURRENT WITH UP-TO-DATE AMENDMENTS DURING THE PROGRESSION OF THE PROJECT. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE EXHAUSTED IN THE SWPPP. I.E., BORROW PITTS, WORK ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER MANAGEMENT IS TO IMPROVE WATER QUALITY BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES. RUNOFF FROM CONSTRUCTION SITES HAS A POTENTIAL FOR POLLUTION DUE TO EXPOSED SOILS AND THE PRESENCE OF HAZARDOUS MATERIALS USED IN THE CONSTRUCTION PROCESS. THE PREVENTION OF SOIL EROSION, CONFINEMENT OF HAZARDOUS MATERIALS AND THE INTERCEPTION OF THESE POLLUTANTS BEFORE LEAVING THE CONSTRUCTION SITE ARE THE BEST PRACTICES FOR CONTROLLING STORM WATER POLLUTION.

The following sections of the 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:

103.05 BONDING REQUIREMENTS
104.111 FINAL CLEANING UP
104.12 CONTRACTORS RESPONSIBILITY FOR WORK
104.13 ENVIRONMENTAL PROTECTION
106.08 STORAGE AND HANDLING OF MATERIAL
107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
107.10 STORM WATER MANAGEMENT
202 MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION PREVENTION AND CONTROL
203 TEMPORARY SEDIMENT CONTROL

IN ADDITION:

"ODOT GENERAL PERMIT (ORR15) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA."


REVISION: 09/19/2017

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

STORM WATER MANAGEMENT PLAN

PROJECT #: 175120-1021-12633

DAMAGE #: 351114

Revised by: Menhenk & Associates, LLC

Date: 09/19/2017

City of Tulsa, Oklahoma
Engineering Services Department

1404 S. Nelmar Ave.
Tulsa, OK 74121

Phone: (918) 599-5000
Fax: (918) 599-5001

E-MAIL: info@menhenk.com
Website: www.menhenk.com

City of Tulsa, Oklahoma
City Code 1059
City of Tulsa, Oklahoma
City Code 1059
CONSTRUCTION NOTES:
SITE 185 (36.09150 -95.98500)
BACKFILL, 519 CY OF UNCLASSIFIED FILL,
70 FT LONG, 50 FT WIDE, 4 FT DEEP,
SURFACE WATER FLOODING ERODED SOIL.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>033051</td>
<td>UNCLASSIFIED BOPOR</td>
<td></td>
<td>CF</td>
<td>519.00</td>
</tr>
</tbody>
</table>
CONSTRUCTION NOTES:
SITE 234 (36.09210, -95.98500)
CULVERT, 1 EACH OF RCP, 20 FT LONG, 15IN IN DIAMETER, SURFACE WATER FLOODING CAUSED PIPE SEPARATIONS.
CITY OF TULSA, OKLAHOMA

SITE 416 - (36.09301, -95.98501)

HAZARD MITIGATION PROPOSAL (HMP) SCOPE OF WORK:
- Adding 6.47 CY rip rap to mitigate damage from rapidly flowing flood waters.
- Adding 50 SY geosynthetic fabric to prevent erosion caused by rapidly flowing flood waters.
- Adding 1 each 15-in diameter, 6-ft long prefabricated concrete end section.

CONSTRUCTION NOTES:
SITE 416 (36.09301, -95.98501)

CULVERT, 1 EACH OF RCP, 55 FT LONG, 15IN IN DIAMETER, SURFACE WATER FLOODING CAUSED IN PIPE SEPARATIONS.

SITE 416 - PAY QUANTITIES

ROADWAY/DBS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>00410</td>
<td>3800</td>
<td>CAISSON SLAB FOUNDATION</td>
<td>SET</td>
</tr>
<tr>
<td>00420</td>
<td>0300</td>
<td>GEOTEXTILE REINFORCEMENT</td>
<td>SF</td>
</tr>
<tr>
<td>00120</td>
<td>0355</td>
<td>TYPE A ALL PLAIN RIPRAP</td>
<td>CY</td>
</tr>
<tr>
<td>00300</td>
<td>2494</td>
<td>15' DIA. RCP PIPE (COMPLETED IN PLACE)</td>
<td>LF</td>
</tr>
<tr>
<td>03312</td>
<td>3724</td>
<td>15' PREFAB. CULVERT END SECTION, ROUND</td>
<td>EA</td>
</tr>
<tr>
<td>SPECIAL</td>
<td>TYPE A ARCM PATCH (NON-ARTERIAL)</td>
<td>SF</td>
<td>6.00</td>
</tr>
</tbody>
</table>

SITE PHOTO

18" TYPE I-A PLAIN RIPRAP

COMPACTED BACKFILL

EXISTING GROUND/ FINISH GRADE

RIPRAP INSTALLATION

SCALE: NONE

SITE 416

1.25% MIN. 35' ARROW OVERLAY ON WATER EROSION AVOIDING VERTICAL WHOEVER IS GREATER.

COMPACTED TOP A AGGREGATE BASE OR FILLABLE FILL QUIK-SETTING SEE NOTE # 4

FOR EXCAVATION WHERE THE DISTANCE BETWEEN THE CONCRETE AREAS AND THE TOP OF THE DRAIN IS 2' OR MORE, 1'-0" - 3' WIDE DEBRIS FILL IS RECOMMENDED. FOR 4' OR LESS, CONCRETE IS RECOMMENDED. FOR 1'-0" TO 3' DEBRIS FILL, USE CONCRETE. FOR CONCRETE OR DEBRIS FILL, ADHESIVE IS RECOMMENDED FOR CONCRETE, AND ENGINEERING FILL, HORIZONTAL STABILIZATION OF THE DEBRIS FILL IS RECOMMENDED.

COMBINED FOR CONCRETE PIPE OR DEBRIS FILL, FOR VARIOUS TYPES OF DEBRIS FILL, SEE NOTE # 3.

LEGEND

FEMA SITE AREA

FEMA SITE 416

PROJECT #175120-1021-126335

DAMAGE # 331114

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

506 MAIN STREET, P.O. BOX 6333, TULSA, OKLAHOMA 74106-6333

PHASE AND DRAWINGS PREPARED BY
Mehmet & Associates, L.L.C.

140 S. BOSTON AVE., TULSA, OKLAHOMA 74120

DESIGNED BY: M&L

ENGINEERING DIRECTOR: ATIP

METRIC DRAWINGS PREPARED BY:

DRAWN: JONE

CHECKED: JONE

ITALIAN DRAWINGS PREPARED BY:

DRAWN: GABRI

CHECKED: JONE

OKIE 811
STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION


PROJECT DESCRIPTION:

SITE 186: REMOVAL OF SEDIMENT.
SITE 189: EROSION CONTROL.
SITE 227: EROSION CONTROL.
SITE 407: REPLACE PIPE.
SITE 422: EROSION CONTROL AND REPLACE PIPE.

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:

1. TEMPORARY EROSION CONTROL
2. PERMANENT EROSION CONTROL

SOIL STABILIZATION PRACTICES:

X PERMANENT SEEDING
X PERMANENT SEEDING, SPRIGGING OR SEEDING
X VEGETATIVE MULCHING
X SOIL RETENTION BLANKET
X PRESERVATION OF EXISTING VEGETATION

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

EROSION AND SEDIMENT CONTROLS

STRUCTURAL PRACTICES:

X STABILIZED CONSTRUCTION EXIT
X TEMPORARY SILT FENCE
X TEMPORARY SILT DYES
X TEMPORARY FIBER LOG
X DIVERSION, INTERCEPTOR OR PERIMETER DYES
X DIVERSION, INTERCEPTOR OR PERIMETER SWALES
X ROCK FILTER DAMS
X TEMPORARY SLOPE DRAINS
X PAVED DITCH W/ DITCH LINER PROTECTION
X TEMPORARY DIVERSION CHANNELS
X TEMPORARY SEDIMENT BASINS
X TEMPORARY SEDIMENT TRAPS
X TEMPORARY SEDIMENT FILTERS
X TEMPORARY SEDIMENT REMOVAL
X RIP RAP
X INFIL SEDIMENT FILTER
X TEMPORARY BRUSH SEDIMENT BARRIERS
X SAMBAG BERM
X TEMPORARY STOCKPILE EROSION

OFFSITE VEHICLE TRACKING:

X HALL ROADS DAMPENED FOR DUST CONTROL
X LOADED HALL TRUCKS TO BE COVERED WITH TARP
X EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

MAINTENANCE AND INSPECTION:
ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ESTABLISHED. INSPECTION BY THE CONTRACTOR AND ANY NEEDED REPAIRS SHALL BE PERFORMED ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH AS RECORDED BY A NON-FREEZING RAIN GAUGE TO BE LOCATED AT THE SITE. POTENTIALLY ERODIBLE AREAS, DRAINAGEWAYS, MATERIAL STORAGE, STRUCTURAL DEVICES, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

WASTE MATERIALS:
PROPRIER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILES, SURPLUS, DESKIS, AND ALL OTHER WASTE PRODUCTS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIAL HANDLING, SEDIMENT PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

HAZARDOUS MATERIALS:
PROPRIER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURER'S RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXAMPLES INCLUDE, BUT ARE NOT LIMITED TO, PAINTS, ACIDS, CLEANING SOLVENTS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOILS.

GENERAL NOTES:
A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED TO COMPLY WITH THE OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. THIS PLAN IS INITIATED DURING THE DESIGN PHASE, CONFIRMED IN THE PRE-WORK MEETINGS AND AVAILABLE ON THE JOB SITE ALONG WITH COPIES OF THE NOTICE OF INTENT (NOI) FORM AND PERMIT CERTIFICATE THAT HAVE BEEN FILED WITH THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ). THE PLAN MUST BE KEPT CURRENT WITH UP-TO-DATE AMENDMENTS DURING THE PROGRESSION OF THE PROJECT. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP. I.E., BORROW PITS, WORK ROADS, DISPOSAL SITES, ASPHALT, CONCRETE, ETC. THE BASIC GOAL OF STORM WATER MANAGEMENT IS TO IMPROVE WATER QUALITY BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES. RUNOFF FROM CONSTRUCTION SITES HAS A POTENTIAL FOR POLLUTION DUE TO EXPOSED SOILS AND THE PRESENCE OF HAZARDOUS MATERIALS USED IN THE CONSTRUCTION PROCESS. THE PREVENTION OF SOIL EROSION, CONTAMINATION OF HAZARDOUS MATERIALS AND THE INTERCEPTION OF THESE POLLUTANTS BEFORE LEAVING THE CONSTRUCTION SITE ARE THE BEST PRACTICES FOR CONTROLLING STORM WATER POLLUTION.

THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:
103.05 Bonding Requirements
104.10 Final Cleaning Up
104.13 Contractors Responsibility for Work
105.08 Storage and Handling of Material
107.01 Laws, Rules and Regulations to be Observed
107.20 Storm Water Management
202.00 Management of Erosion, Sedimentation and Storm Water Pollution Prevention and Control
221.00 Temporary Sediment Control

IN ADDITION:
"OQGD GENERAL PERMIT (GDP) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA. OQGD, WATER QUALITY DIVISION, SEPTEMBER 13, 2017."
CONSTRUCTION NOTES:
SITE 186 (36.09935, -95.98444)

STORM DRAIN, 3 CY OF SEDIMENT REMOVAL FROM INSIDE RCP (SILT IN PIPE), 60 FT LONG X 20 IN WIDE X 10 IN DEEP, SURFACE WATER FLOODING DEPOSITED SAND/SILT IN PIPE (CLEAN OUT ONLY).

SCOPE NOTE:
1. EXTRACTED SILT THAT CANNOT BE REUSED ON SITE WILL BE DISPOSED AT THE C & D LANDFILL LOCATED AT 13012 OK HWY 266, TULSA, OK 74146, WITH THE GPS COORDINATE 36.219336, -95.830182 (SOLID WASTE PERMIT NO. 3572042). IF THE SILT DESTINATION CHANGES, THE APPLICANT MUST NOTIFY FEMA AND THE RECIPIENT PRIOR TO DELIVERING TO THE NEW LOCATION.
CONSTRUCTION NOTES:
SITE 199 (36.10360, -95.98470)
BACKFILL, 6 CY OF UNCLASSIFIED FILL, 15 FT LONG X 5 FT WIDE X 2 FT DEEP.
SURFACE WATER FLOODING ERODED SOIL.

SITE 199 - PAY QUANTITIES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>20301</td>
<td>0184 UNCLASSIFIED BORROW</td>
<td></td>
<td>CY</td>
<td>600</td>
</tr>
<tr>
<td>23601</td>
<td>2884 SOLID SLAB SODDING</td>
<td>10-15.11</td>
<td>SV</td>
<td>900</td>
</tr>
</tbody>
</table>

LOCATION MAP

SITE 199

LEGEND

FEMA SITE 199
PROJECT #175120-1021-126333
DAMAGE # 331117
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND SPECIFICATIONS PREPARED BY:
Mebek & Associates, LLC
1435 S. Boulder Ave., Suite 201, Tulsa, OK 74119
(918) 581-9330

SCALE: 1" = 100' 0"

CHECKED: M. D. Grimes
DATE: 10/28/08 1 APPROVED

PHOTO SCALES:
1.00" = 1'-0" VERTICAL:
SCALE: 1" = 1'-0"

OKIE 111
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

FEMA PHOTO 1
GENERAL COPYRIGHT NOTICE:
OKIE 111 is a registered service mark of the City of Tulsa, Oklahoma. All rights reserved. No part of the OKIE 111 drawing herein may be reproduced without the written consent of the City of Tulsa, Oklahoma. 4-2-2008.

FEMA PAGE 2 1/4/08
CONSTRUCTION NOTES:
SITE 227 (36.10090, -95.98460)
BACKFILL, 519 CY OF UNCLASSIFIED FILL, 200 FT LONG X 35 FT WIDE X 2 FT DEEP.
SURFACE WATER FLOODING ERODED SOIL ON BANK.

SITE 227

PROJECT #173120-1021-126335
FEMA SITE 227

LEGEND

FEMA SITE AREA
CONSTRUCTION NOTES:
SITE 407 (36.098086, -95.98450)

STORM DRAIN, RCP, 50 FT LONG X 15IN IN DIAMETER, SURFACE WATER FLOODING CAUSED SEPARATION TO PIPE SEALS.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1305.01 3006</td>
<td>SOIL SLAB SOAKING</td>
<td>E-1511</td>
<td>SY</td>
<td>11.00</td>
</tr>
<tr>
<td>3132.06   3006</td>
<td>ST PIPE (IN PLACE)</td>
<td>1-4-8-25-11</td>
<td>LF</td>
<td>50.00</td>
</tr>
<tr>
<td>SPECIAL</td>
<td>TYPE I APC PATCH (NON-ARTERIAL)</td>
<td>5-21</td>
<td>SY</td>
<td>15.00</td>
</tr>
</tbody>
</table>

SITE LOCATION
SITE 407

LOCATION MAP

SITE 407

1. TYPE I APC CUT AND REPAIR (NON-ARTERIAL)

LEGEND

FEMA SITE AREA

FEMA SITE 407

PROJECT #1735120-TO2-126333

DAMAGE # 331117

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

12/1/10

OKIE 811
CITY OF TULSA, OKLAHOMA

PUBLIC QUESTIONS CONTACT:
Melbeck & Associates, LLC
6617 South Memorial Drive
Tulsa, OK 74140
918-399-3444
mcclellan@melbeck.com
CONSTRUCTION NOTES:
SITE 412 (36.10510, -95.98445)

STORM DRAIN, RCP, 60 FT LONG X 24IN IN DIAMETER, SURFACE WATER FLOODING CAUSED SEPARATION TO PIPE.

SITE 412 - (36.10510, -95.98445)

Hazard Mitigation Proposal (HMP) Scope of Work:
- ADDING 46.61 CY RIP RAP TO MITIGATE DAMAGE FROM RAPIDLY FLOWING FLOOD WATERS.
- ADDING 450 SY GEOSYNTHETIC FABRIC TO PREVENT EROSION CAUSED BY RAPIDLY FLOWING FLOOD WATERS.

ROADWAY 0100

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>LIMIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>SOLID SUB SOODING</td>
<td>0-30.33</td>
<td>ST</td>
<td>450.00</td>
</tr>
<tr>
<td>5110</td>
<td>GEOSYNTIC REINFORCEMENT</td>
<td>CY</td>
<td>47.00</td>
<td></td>
</tr>
<tr>
<td>2050</td>
<td>TYPE I/A PLAIN RIPRAP</td>
<td></td>
<td>CY</td>
<td>47.00</td>
</tr>
<tr>
<td>6180</td>
<td>24&quot; RCP PIPE CLS III (COMPLETE IN PLACE)</td>
<td>0-8.12.13</td>
<td>LF</td>
<td>60.00</td>
</tr>
<tr>
<td>SPECIAL</td>
<td>TYPE SPEC PATCH MATERIAL</td>
<td>0.25</td>
<td>ST</td>
<td>83.00</td>
</tr>
</tbody>
</table>

SITE 412 - PAY QUANTITIES

SITE 412 - CUT AND REPAIR (ARTERIAL)

SITE 412 SEE CONSTRUCTION NOTES

LEGEND

FEMA SITE 412

PROJECT #175120-TO21-128355

DAMAGE # 331117

CITY OF TULSA, OKLAHOMA

ENGINEERING SERVICES DEPARTMENT

PLAT AND DRAWN PREPARED BY: Menbeck & Associates, LLC.

OKIE 811

CITY OF TULSA, OKLAHOMA

ENGINEERING SERVICES DEPARTMENT
CONSTRUCTION NOTES:
SITE 422 (36.09880, -95.98445)

STORM DRAIN, RCP, 6 FT LONG X 18IN IN DIAMETER, SURFACE WATER FLOODING CAUSED SEPARATION PIPE JOINT SEALS.
## STORM WATER MANAGEMENT PLAN

### SITE DESCRIPTION

**PROJECT LIMITS:** Damage Inventory #301153, Sites along the east side of the Arkansas River including Site 232, Site 233, Site 319, Site 330, site 234, Site 401, Site 413, and Site 415, all approximately located in the E/2 of Section 24, T. 29 N., R. 12 E. in the City Limits of Tulsa, Oklahoma.

**PROJECT DESCRIPTION:**
- Site 413: Erosion Control and Replace Pipe
- Site 233: Erosion Control, Replace Pipe
- Site 319: Erosion Control and Clad/Vert End Section (Remove and Replace)
- Site 343: Erosion Control
- Site 381: Replace Pipe
- Site 396: Replace Pipe
- Site 401: Erosion Control and Replace Pipe

**SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:**
1. Temporary Erosion Control
2. Permanent Erosion Control

**SOIL TYPE:** Very Fine Sandy Loam, Silt Loam, Stratified Loamy Fine Sand, Silty Clay Loam, Variable

**TOTAL AREA OF THE CONSTRUCTION SITE:** Less than 1 acre combined

**ESTIMATED AREA TO BE DISTURBED:** Less than 1 acre combined

**OFFSITE AREA TO BE DISTURBED:** (For Contractor Use)

**TOTAL IMPERVIOUS AREA PRE-CONSTRUCTION:** 0.012 Acres

**TOTAL IMPERVIOUS AREA POST-CONSTRUCTION:** 0.012 Acres

**OFFSITE CONSTRUCTION RUNOFF COEFFICIENT OF THE SITE:** X.X

**NAME OF RECEIVING WATERS:** Arkansas River

**SENSITIVE WATERS OR WATERSHEDS:**
- Yes [ ]
- No [x]

**303 IMPAIRED WATERS:**
- Yes [ ]
- No [x]

**IF YES, LIST IMPAIRMENT:** Cadmium

**LOCATED IN A TMDL:**
- Yes [ ]
- No [x]

**LAKE THUNDERBIRD TMDL:**
- Yes [ ]
- No [x]

**MS4 ENTITY:**
- Yes [ ]
- No [x]

**IF YES, LOCATION:** Tulsa County

### EROSION AND SEDIMENT CONTROLS

**SOIL STABILIZATION PRACTICES:**
- Temporary Seeding
- Permanent Seeding, Sтриgging or Seeding
- Vegetative Mulching
- Soil Retention Blanket
- Preservation of Existing Vegetation

**STRUCTURAL PRACTICES:**
- Stabilized Construction Exit
- Temporary Silt Fence
- Temporary Silt Oxes
- Temporary Fiber LG
- Diversion, Interceptor or Perimeter Dikes
- Diversion, Interceptor or Perimeter Swales
- Rock Fill Dams
- Temporary Slope Drain
- Paved Ditch (w/ Ditch Liner Protection)
- Temporary Diversion Channels
- Temporary Sediment Basins
- Temporary Sediment Traps
- Temporary Sediment Filters
- Temporary Sediment Removal
- Rip Rap
- Inlet Sediment Filter
- Temporary Brush Sediment Barriers
- Sandbag Berms
- Temporary Stream Crossings

### NOTES:

The contractor shall also be responsible for the following:

**MAINTENANCE AND INSPECTION:**
- All erosion and sediment controls will be maintained in good working order from the beginning of construction until an acceptable vegetative cover is established. Inspection by the contractor and any necessary repairs shall be performed once every 7 calendar days and within 24 hours after any storm event greater than 0.5 inch as recorded by a non-freezing rain gauge to be located on site. Potentially erodible areas, drainageways, material storage, structural devices, construction entrance and exits along with erosion and sediment control locations are examples of sites that need to be inspected.

**WASTE MATERIALS:**
- Proper management and disposal of construction waste material is required by the contractor. Materials include stockpiles, surplus, debris, and all other by-products from the construction process. Practices include disposal, proper materials handling, spill prevention and cleanup measures. Controls and practices shall meet the requirements of all federal, state and local agencies.

### GENERAL NOTES:

A storm water pollution prevention plan (SWPPP) is required to comply with the Oklahoma pollution discharge elimination system (OPDES) regulations. This plan is initiated during the design phase in the pre-construction meetings and is available on the job site along with copies of the notice of intent (NOI) and permit certificate that has been filed with the Oklahoma Department of Environmental Quality (ODEQ). The plan must be kept current with up-to-date amendments during the progression of the project. All contractor off-site operations associated with the project must be documented in the SWPPP. I.e., borrow pits, work roads, disposal sites, asphalts, concrete, etc. The basic goal of storm water management is to improve water quality by reducing pollutants in storm water discharges. Runoff from construction sites has a potential for pollution due to exposed soils and the presence of hazardous materials used in the construction process. The prevention of soil erosion, containment of hazardous materials, and the interception of these pollutants before leaving the construction site are the best practices for controlling storm water pollution.

The following sections of the 2009 ODOT standards specifications should be noted:

- 103.05 Bonding Requirements
- 104.10 Final Cleaning Up
- 104.12 Contractor’s Responsibility for Work
- 104.13 Environmental Protection
- 108.08 Storage and Handling of Material
- 107.01 Laws, Rules, and Regulations to be Observed
- 107.20 Storm Water Management

**IN ADDITION:**

- ODEQ General Permit (ODR10) for Storm Water Discharges from Construction Activities within the State of Oklahoma.

- ODEQ, Water Quality Division, September 13, 2017.

---

**STORM WATER MANAGEMENT PLAN**

**PROJECT:** 173120-1021-12633

**DAMAGE:** 301153

**CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT**

---

**REVISED:** 08/19/2017

---

**REVISED:** 08/19/2017

---

**REVISED:** 08/19/2017
CONSTRUCTION NOTES:
SITE 223 (36.1119, -95.98410)

BACKFILL, 1 CY OF UNCLASSIFIED FILL (IN PIPE-CLEAN OUT ONLY), 75 FT LONG X 12 IN WIDE X 6 IN DEEP, SURFACE WATER FLOODING ERODED SOIL.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>223/10</td>
<td>1025 REMOVAL OF SEDIMENT</td>
<td>CY</td>
<td>1.00</td>
</tr>
</tbody>
</table>
CONSTRUCTION NOTES:
SITE 226 (36.10810, -95.98430)

STORM DRAIN, RCP, 6 FT LONG X 30IN IN DIAMETER, SURFACE WATER FLOODING SEPARATED SECTIONS OF PIPE.

STONE, 15 CY OF RIP-RAP (WITH GEOTEXTILE FABRIC), 20 FT LONG X 10 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED STONE.
CONSTRUCTION NOTES:
SITE 319 (36.10650, -95.98420)

BACKFILL, 141 CY OF UNCLASSIFIED FILL, 190 FT LONG X 10 FT WIDE X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL ALONG BANK.

HAZARD MITIGATION PROPOSAL (HMP) SCOPE OF WORK:

- ADDING 8.47 CY RIP RAP TO MITIGATE DAMAGE FROM RAPIDLY FLOWING FLOOD WATERS.
- ADDING 50 SQ GEOSYNTHETIC FABRIC TO PREVENT EROSION CAUSED BY RAPIDLY FLOWING FLOOD WATERS.
- ADDING 1 EACH 18-IN DIAMETER, 6-FT LONG PREFABRICATED CONCRETE END SECTION.

SITE LOCATION

LOCATION MAP

SITE 319

SITE PHOTO

SITE PHOTO

LEGEND

FEMA SITE AREA

OKIE 811

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT
Mashburn & Associates, LLC

FEMA SITE 319
PROJECT #173120-1021-126335
DAMAGE # 351153

REGION #10
DISASTER #1007
POSSIBLE FLOOD ZONE "A"
POSSIBLE FLOOD ZONE "X"
POSSIBLE FLOOD ZONE "AE""
CONSTRUCTION NOTES:
SITE 343 (36.10950, -95.98440)
BACKFILL, 222 CY OF UNCLASSIFIED FILL, 300 FT LONG X 10 FT WIDTH X 2 FT DEEP, SURFACE WATER FLOODING ERODED SOIL.
CONSTRUCTION NOTES:
SITE 381 (36.10690, -95.98370)
STORM DRAIN, RCP 4 FT LONG X 18 IN
DIAMETER, SURFACE WATER FLOODING FORCE
SEPARATED SECTIONS OF PIPE.

SITE 381 - PAY QUANTITIES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>SOLID SLAB SODIUM</td>
<td>E-10,11</td>
<td>SV</td>
<td>2.50</td>
</tr>
<tr>
<td>5045</td>
<td>18&quot; PC CYPR CURB (COMPLETE IN PLACE)</td>
<td>9-10,11,13.5</td>
<td>LF</td>
<td>4.30</td>
</tr>
</tbody>
</table>

SITE 381 SEE CONSTRUCTION NOTES

FEMA SITE 381
PROJECT #173120-T021-126333
DAMAGE # 331153

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

Mabry & Associates, LLC

PLAN SHEET: 173120-T021-126333
CONSTRUCTION NOTES:
SITE 396 (36.11157, -95.98401)

STORM DRAIN, RCP 20 FT LONG X 211N IN DIAMETER, SURFACE WATER FLOODING CRACKED END SECTION OF PIPE.

SITE LOCATION
SITE 396

SITE 396 - PAY QUANTITIES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>63899</td>
<td>8996</td>
<td>25'-0'-RCP CLASS II COMPLETE IN PLACE</td>
<td>Y2, Y3, Y4, Y5</td>
<td>YF</td>
</tr>
<tr>
<td>SPECIAL</td>
<td>TYPE I PCC PATCH (MATERIAL)</td>
<td>4-21</td>
<td>YF</td>
<td>20.95</td>
</tr>
</tbody>
</table>

12/14/2020

LEGEND

FEMA SITE AREA

FEMA SITE 396
PROJECT #009000-1021-128333
DAMAGE # 331153

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT
PLANS AND ESIMATES PREPARED BY: Mashek & Associates, L.L.C.

SCALE: NONE

TYPE I PCC CUT AND REPAIR (ARTERIAL)
CONSTRUCTION NOTES:
SITE 401 (36.11060, -95.98410)
BACKFILL, 59 CY OF UNCLASSIFIED FILL, 80 FT
LONG X 10 FT WIDE X 2 FT DEEP, SURFACE
WATER FLOODING ERODED SOIL.
STORM DRAIN, CMP 28 FT LONG 18IN IN
DIAMETER, SURFACE WATER FLOODING CAUSED
SEPARATION TO SECTIONS OF PIPE.
CONSTRUCTION NOTES
SITE 413 (36.11260, -95.98430)
STORM DRAIN, RCP 50 FT LONG 18IN IN DIAMETER, SURFACE WATER FLOODING CAUSED SEPARATION TO SECTIONS OF PIPE.