
NARRATIVE

Oak Creek Glen Meadows 2nd
Wichita, Sedgwick County, Kansas
November 2013

Drainage Improvement Narrative:

The future Glen Meadows 2nd development is south of the Oak Creek Office Park and is a 12 acre parcel planned for 22 single family lots of approximately 15,000 SF in size. The site drainage was analyzed with the HEC-HMS software and the SCS-CN method for routing the runoff through future retention ponds (South Reservoir and North Reservoir). The model for this project is part of a comprehensive stormwater model that is being updated for the overall Oak Creek Development to reflect planning changes. An existing condition runoff CN of 84 for Hydrologic Soil Group D was used for an average pastureland condition. A post development runoff CN of 88 was used representing the combination of residential lots of approximately 1/3 acre and the proposed pond area. The area to be developed drains to a natural watercourse that is piped underneath Chateau Parkway in an existing 48" RCP internally through the overall development. This drainage analysis was submitted as part of the Oak Creek Office Park drainage plan. See the enclosed Drainage Map.

The future Glen Meadows development drainage area is 17.03 acres in size and drains to this 48" culvert. The existing time of concentration is approximately 20.2 minutes. In the developed condition, the site will be collected in an urban stormsewer system and piped to a retention pond. The time of concentration will be reduced to approximately 15 minutes.

The resulting pre and post peak 100-year runoff rates for the North Basin are 111.3 and 133.0 cfs respectively. A retention pond (North Reservoir) of approximately 0.7 acres will be developed in Reserve C at the low area of the subdivision to attenuate site runoff. An upstream existing pond (South Reservoir) discharges 47.5 cfs during the 100-year event. The total 100-year pre peak runoff rate of 158.8 cfs will be reduced by 6.9 cfs making the allowable discharge rate only 151.9 cfs from the north retention pond. This will account for the Office Park's non-attenuated runoff described below. The north retention pond will have a post peak 100-year inflow rate of 164.3 cfs.

The existing pond (South Reservoir) will be increased in size to approximately 0.7 acres. This pond will discharge into the north retention pond at a rate of 32.8 cfs during the 100-year event. This 32.8 cfs is included in the 164.3 cfs post peak 100-year inflow rate. The normal water level of the future south pond will be at elevation 1388.0. The post 100-year runoff will raise the pond level 1.4 feet to elevation 1389.4.

The existing headwall in the north pond will be altered and used to regulate the post development peak runoff rate to 112.4 cfs. The normal water level of the future north retention pond will be at elevation 1374.7. The post 100-year runoff will raise the pond

level 3.6 feet to elevation 1378.3. This future retention pond can serve for the logically developed area drainage into it as well as address the excess runoff from the office park site. The pond routing computational results for the 2, 5, 10 and 25 year 24-hour precipitation events are also enclosed and tabularized on the Drainage Map. All developed headwall discharges are less than the pre condition discharges for each precipitation event.

A preliminary grading plan for the subdivision is also enclosed in this Drainage Report.

The following discussion is from the drainage analysis for the Oak Creek Office Park. The Oak Creek Office Park on 21st Street and west of Greenwich Road is a portion of the planned Oak Creek 3rd Addition which is part of the Oak Creek Development Master Plan. The proposed plat lies in the NE ¼, Section 9, T27S, R2E. An approved Drainage Plan for the Oak Creek 3rd Addition is on file with the City of Wichita. This Drainage Report will also address the planned development of the Oak Creek Office Park along 21st Street.

The office park site plan area is approximately 3.34 acres. Runoff will be collected in a stormwater inlet and piped to the existing stormsewer system in 21st Street. Excess runoff will be retained in the parking lot as much as possible.

The existing condition is undeveloped land with planted pine trees for sale. The soil on-site is comprised primarily of Goessel silty clay, Irwin silty clay loam and Rosehill silty clay which are all classified in the Hydrologic Soil Group as D soils.

An existing vacant lands Rational Method runoff coefficient C of 0.52, 0.54, 0.59, 0.61 and 0.68 is applicable for the 2, 5, 10, 25 and 100 storms respectively. The time of concentration is approximately 15 minutes. Peak runoff rates from the 2, 5, 10, 25 and 100 year recurrence interval precipitation events would generate 6.6, 8.3, 10.2, 12.3 and 16.7 cfs respectively.

The post development condition of the office park site with the planned impervious area would represent a weighted C value of 0.67, 0.70, 0.75, 0.76 and 0.82 for the 2, 5, 10, 25 and 100 storms respectively considering lawns, roofs and parking lots. The time of concentration would be reduced to approximately 10 minutes. Correspondingly, the recurrence interval storms would generate 10.1, 12.7, 15.2, 18.1 and 23.6 cfs respectively.

The increased difference in these peak runoff rates between pre and post developed conditions for the 100-year storm is 6.9 cfs. This excess runoff rate is planned to be routed through the future retention pond system in the Glen Meadows residential development to the south as was previously conceptually presented in the approved Stormwater Master Plan.

Acceptable best management practices (BMPs) will be employed in the final drainage design before and during construction.

References

Design of Urban Highway Drainage – The State of the Art, by Reitz & Jens, Inc., April 1980.

Drainage of Highway Pavements, Hydraulic Engineering Circular #12, by Tye Engineering, Inc., March 1984.

Interim Drainage and Storm Sewer Policy for Design Criteria and Documentation, City of Wichita, Kansas, 1985.

Soil Survey of Sedgwick County, Kansas, US Department of Agriculture, Soil Conservation Service, 1979.

EXISTING HYDROLOGY

1981/1982

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 2 YR Subbasin: North Basin

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 2
Compute Time:	25Nov2013, 13:35:53	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Discharge :	37.6 (CFS)	Date/Time of Peak Discharge :	20Mar2010, 12:05
Total Precipitation :	3.50 (IN)	Total Direct Runoff :	1.94 (IN)
Total Loss :	1.56 (IN)	Total Baseflow :	0.00 (IN)
Total Excess :	1.94 (IN)	Discharge :	1.94 (IN)

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 5 YR Subbasin: North Basin

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 5
Compute Time:	25Nov2013, 13:37:01	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Discharge :	54.5 (CFS)	Date/Time of Peak Discharge :	20Mar2010, 12:05
Total Precipitation :	4.50 (IN)	Total Direct Runoff :	2.82 (IN)
Total Loss :	1.68 (IN)	Total Baseflow :	0.00 (IN)
Total Excess :	2.82 (IN)	Discharge :	2.82 (IN)

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 10 YR Subbasin: North Basin

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 10
Compute Time:	25Nov2013, 13:34:26	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Discharge :	63.0 (CFS)	Date/Time of Peak Discharge :	20Mar2010, 12:05
Total Precipitation :	5.00 (IN)	Total Direct Runoff :	3.27 (IN)
Total Loss :	1.73 (IN)	Total Baseflow :	0.00 (IN)
Total Excess :	3.27 (IN)	Discharge :	3.27 (IN)

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 25 YR Subbasin: North Basin

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 25
Compute Time:	25Nov2013, 13:35:11	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Discharge :	82.0 (CFS)	Date/Time of Peak Discharge :	20Mar2010, 12:05
Total Precipitation :	6.10 (IN)	Total Direct Runoff :	4.29 (IN)
Total Loss :	1.81 (IN)	Total Baseflow :	0.00 (IN)
Total Excess :	4.29 (IN)	Discharge :	4.29 (IN)

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 100 YR Subbasin: North Basin

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 100
Compute Time:	25Nov2013, 13:31:29	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Discharge :	111.3 (CFS)	Date/Time of Peak Discharge :	20Mar2010, 12:05
Total Precipitation :	7.80 (IN)	Total Direct Runoff :	5.90 (IN)
Total Loss :	1.90 (IN)	Total Baseflow :	0.00 (IN)
Total Excess :	5.90 (IN)	Discharge :	5.90 (IN)

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 2 YR Subbasin: South Basin

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 2
Compute Time:	25Nov2013, 13:35:53	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Discharge :	20.4 (CFS)	Date/Time of Peak Discharge :	20Mar2010, 12:02
Total Precipitation :	3.50 (IN)	Total Direct Runoff :	1.94 (IN)
Total Loss :	1.56 (IN)	Total Baseflow :	0.00 (IN)
Total Excess :	1.94 (IN)	Discharge :	1.94 (IN)

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 5 YR Subbasin: South Basin

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 5
Compute Time:	25Nov2013, 13:37:01	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Discharge :	29.6 (CFS)	Date/Time of Peak Discharge :	20Mar2010, 12:02
Total Precipitation :	4.50 (IN)	Total Direct Runoff :	2.82 (IN)
Total Loss :	1.68 (IN)	Total Baseflow :	0.00 (IN)
Total Excess :	2.82 (IN)	Discharge :	2.82 (IN)

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 10 YR Subbasin: South Basin

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 10
Compute Time:	25Nov2013, 13:34:26	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Discharge :	34.2 (CFS)	Date/Time of Peak Discharge :	20Mar2010, 12:02
Total Precipitation :	5.00 (IN)	Total Direct Runoff :	3.27 (IN)
Total Loss :	1.73 (IN)	Total Baseflow :	0.00 (IN)
Total Excess :	3.27 (IN)	Discharge :	3.27 (IN)

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 25 YR Subbasin: South Basin

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 25
Compute Time:	25Nov2013, 13:35:11	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Discharge :	44.4 (CFS)	Date/Time of Peak Discharge :	20Mar2010, 12:02
Total Precipitation :	6.10 (IN)	Total Direct Runoff :	4.29 (IN)
Total Loss :	1.81 (IN)	Total Baseflow :	0.00 (IN)
Total Excess :	4.29 (IN)	Discharge :	4.29 (IN)

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 100 YR Subbasin: South Basin

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 100
Compute Time:	25Nov2013, 13:31:29	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Discharge :	60.3 (CFS)	Date/Time of Peak Discharge :	20Mar2010, 12:02
Total Precipitation :	7.80 (IN)	Total Direct Runoff :	5.90 (IN)
Total Loss :	1.90 (IN)	Total Baseflow :	0.00 (IN)
Total Excess :	5.90 (IN)	Discharge :	5.90 (IN)

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 2 YR Reservoir: South Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 2
Compute Time:	25Nov2013, 14:32:03	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	20.4 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:02
Peak Outflow :	15.1 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:08
Total Inflow :	1.94 (IN)	Peak Storage :	0.4 (AC-FT)
Total Outflow :	1.94 (IN)	Peak Elevation :	1389.2 (FT)

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 5 YR Reservoir: South Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 5
Compute Time:	25Nov2013, 14:31:06	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	29.6 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:02
Peak Outflow :	22.0 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:08
Total Inflow :	2.82 (IN)	Peak Storage :	0.5 (AC-FT)
Total Outflow :	2.82 (IN)	Peak Elevation :	1389.4 (FT)

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 10 YR Reservoir: South Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 10
Compute Time:	25Nov2013, 14:29:06	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	34.2 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:02
Peak Outflow :	25.6 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:08
Total Inflow :	3.27 (IN)	Peak Storage :	0.6 (AC-FT)
Total Outflow :	3.27 (IN)	Peak Elevation :	1389.4 (FT)

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 25 YR Reservoir: South Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 25
Compute Time:	25Nov2013, 14:32:52	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	44.4 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:02
Peak Outflow :	34.0 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:08
Total Inflow :	4.29 (IN)	Peak Storage :	0.7 (AC-FT)
Total Outflow :	4.29 (IN)	Peak Elevation :	1389.6 (FT)

Project: 13438-002 HEC-HMS
Simulation Run: Pre-Dev 100 YR Reservoir: South Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Pre-Development
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 100
Compute Time:	25Nov2013, 14:33:53	Control Specifications:	Control 1

Volume Units: IN

Computed Results:

Peak Inflow :	60.3 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:02
Peak Outflow :	47.5 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:07
Total Inflow :	5.90 (IN)	Peak Storage :	0.8 (AC-FT)
Total Outflow :	5.90 (IN)	Peak Elevation :	1389.9 (FT)

PROPOSED HYDROLOGY
(POND ROUTING)

1/1/1971

Project: 13438-002 HEC-HMS
Simulation Run: Run 2 Reservoir: North Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Basin 1
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 2
Compute Time:	22Nov2013, 08:29:23	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	61.2 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:03
Peak Outflow :	49.0 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:09
Total Inflow :	2.27 (IN)	Peak Storage :	0.7 (AC-FT)
Total Outflow :	2.27 (IN)	Peak Elevation :	1376.3 (FT)

Project: 13438-002 HEC-HMS
Simulation Run: Run 5 Reservoir: North Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Basin 1
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 5
Compute Time:	22Nov2013, 08:31:09	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	86.8 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:03
Peak Outflow :	72.0 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:09
Total Inflow :	3.20 (IN)	Peak Storage :	0.9 (AC-FT)
Total Outflow :	3.20 (IN)	Peak Elevation :	1376.7 (FT)

Project: 13438-002 HEC-HMS
Simulation Run: Run 10 Reservoir: North Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Basin 1
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 10
Compute Time:	22Nov2013, 08:31:53	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	99.7 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:03
Peak Outflow :	83.3 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:08
Total Inflow :	3.67 (IN)	Peak Storage :	1.0 (AC-FT)
Total Outflow :	3.67 (IN)	Peak Elevation :	1377.0 (FT)

Project: 13438-002 HEC-HMS
Simulation Run: Run 25 Reservoir: North Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Basin 1
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 25
Compute Time:	22Nov2013, 08:32:33	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	127.9 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:03
Peak Outflow :	95.9 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:09
Total Inflow :	4.72 (IN)	Peak Storage :	1.3 (AC-FT)
Total Outflow :	4.72 (IN)	Peak Elevation :	1377.5 (FT)

Project: 13438-002 HEC-HMS
Simulation Run: Run 100 Reservoir: North Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Basin 1
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 100
Compute Time:	22Nov2013, 08:33:29	Control Specifications:	Control 1

Volume Units: AC-FT

Computed Results

Peak Inflow :	164.3 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:02
Peak Outflow :	112.4 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:10
Total Inflow :	13.4 (AC-FT)	Peak Storage :	1.8 (AC-FT)
Total Outflow :	13.4 (AC-FT)	Peak Elevation :	1378.3 (FT)

Project: 13438-002 HEC-HMS
Simulation Run: Run 2 Reservoir: South Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Basin 1
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 2
Compute Time:	22Nov2013, 08:29:23	Control Specifications:	Control 1

Volume Units: AC-FT

Computed Results

Peak Inflow :	23.8 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:02
Peak Outflow :	15.9 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:09
Total Inflow :	1.5 (AC-FT)	Peak Storage :	0.3 (AC-FT)
Total Outflow :	1.5 (AC-FT)	Peak Elevation :	1388.6 (FT)

Project: 13438-002 HEC-HMS
Simulation Run: Run 5 Reservoir: South Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Basin 1
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 5
Compute Time:	22Nov2013, 08:31:09	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	33.1 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:02
Peak Outflow :	23.4 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:09
Total Inflow :	3.20 (IN)	Peak Storage :	0.4 (AC-FT)
Total Outflow :	3.20 (IN)	Peak Elevation :	1388.7 (FT)

Project: 13438-002 HEC-HMS
Simulation Run: Run 10 Reservoir: South Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Basin 1
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 10
Compute Time:	22Nov2013, 08:31:53	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	37.7 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:02
Peak Outflow :	27.1 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:08
Total Inflow :	3.67 (IN)	Peak Storage :	0.5 (AC-FT)
Total Outflow :	3.67 (IN)	Peak Elevation :	1388.8 (FT)

Project: 13438-002 HEC-HMS
Simulation Run: Run 25 Reservoir: South Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Basin 1
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 25
Compute Time:	22Nov2013, 08:32:33	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	47.9 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:02
Peak Outflow :	31.3 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:09
Total Inflow :	4.72 (IN)	Peak Storage :	0.6 (AC-FT)
Total Outflow :	4.72 (IN)	Peak Elevation :	1389.0 (FT)

Project: 13438-002 HEC-HMS
Simulation Run: Run 100 Reservoir: South Reservoir

Start of Run:	20Mar2010, 00:00	Basin Model:	Basin 1
End of Run:	23Mar2010, 00:00	Meteorologic Model:	Met 100
Compute Time:	22Nov2013, 08:33:29	Control Specifications:	Control 1

Volume Units: AC-FT

Computed Results

Peak Inflow :	63.6 (CFS)	Date/Time of Peak Inflow :	20Mar2010, 12:02
Peak Outflow :	32.8 (CFS)	Date/Time of Peak Outflow :	20Mar2010, 12:11
Total Inflow :	4.3 (AC-FT)	Peak Storage :	0.9 (AC-FT)
Total Outflow :	4.3 (AC-FT)	Peak Elevation :	1389.4 (FT)