



언리얼 페스트 2024 서울

언리얼 엔진5를 활용한 광역 도심 디지털트윈 구현과 활용

송민수

CTO

(주)테크트리이노베이션

(주)테크트리이노베이션

고정밀 고해상도 공간 디지털 트윈 플랫폼 기업



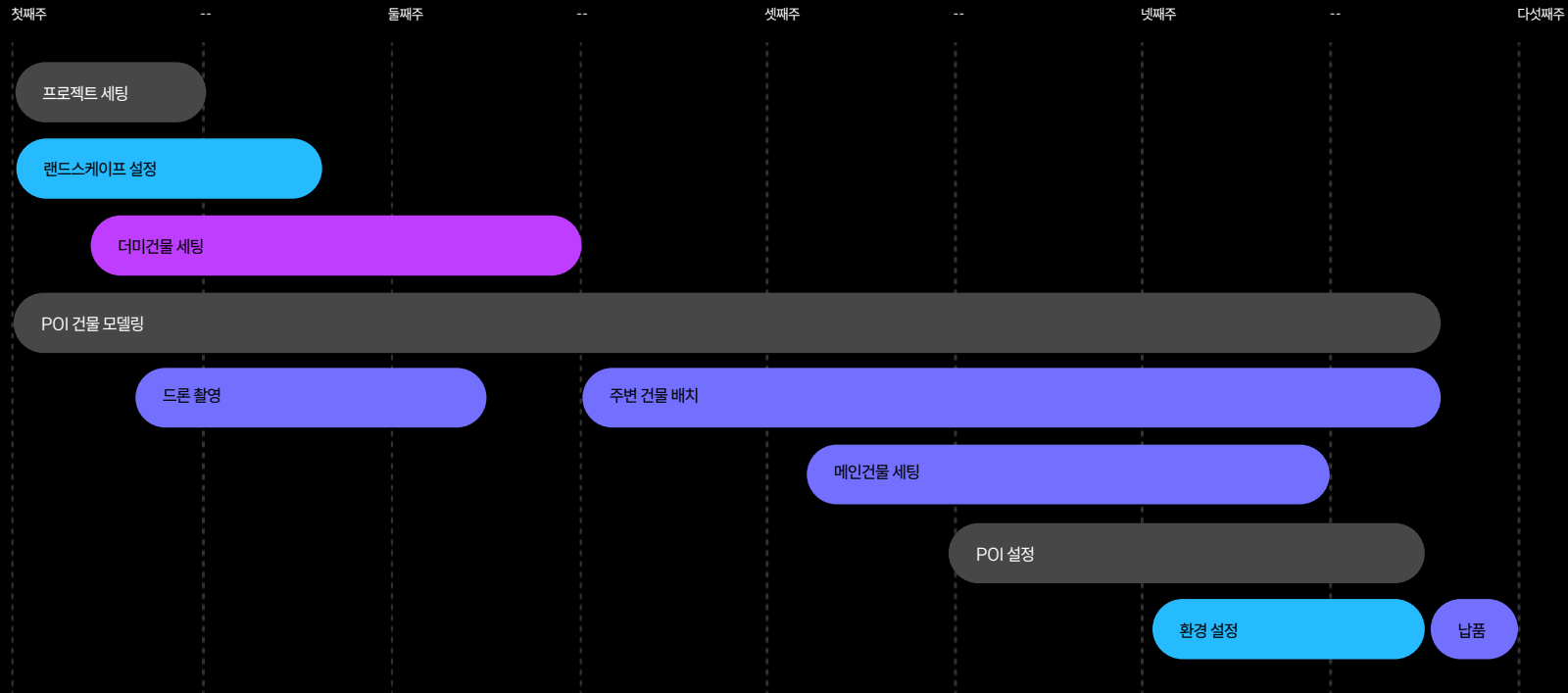
AROUND.map

제주도 공간 디지털트윈

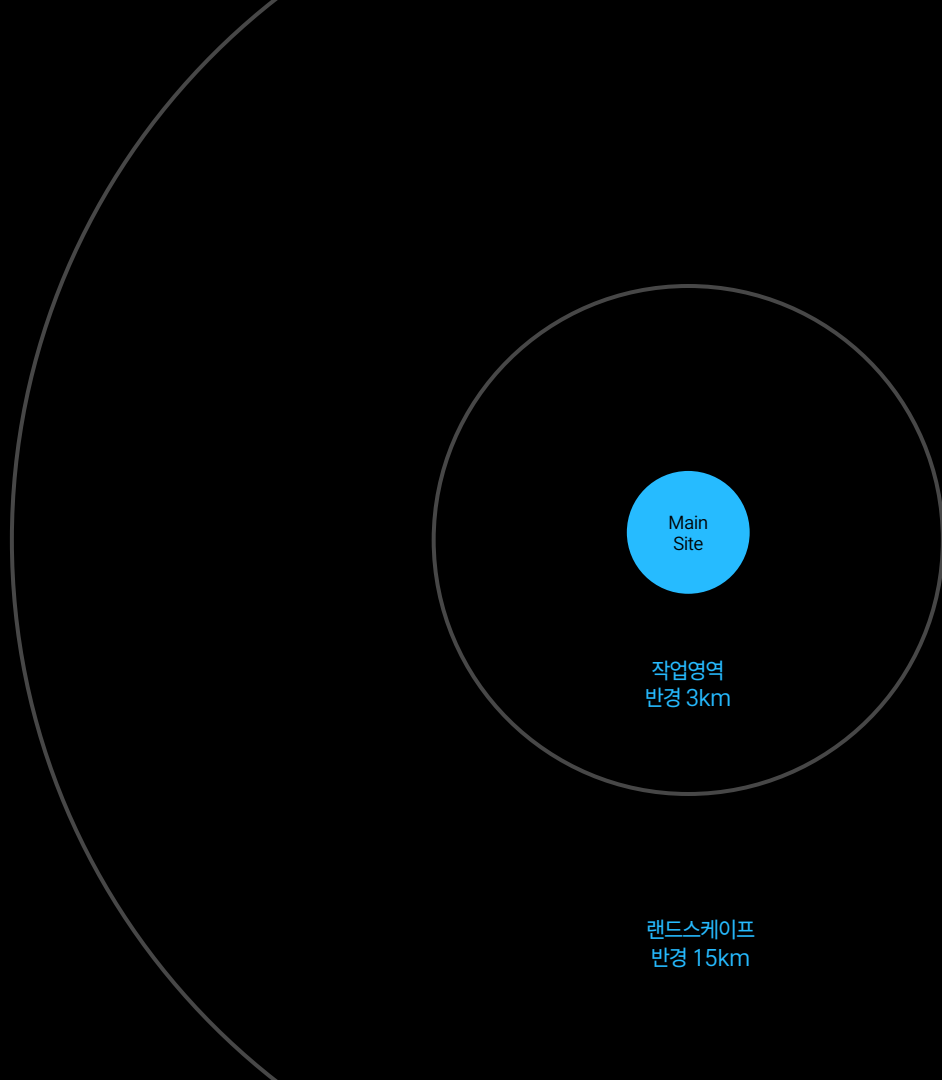
- 제주 중부공원 제일풍경채 센트럴파크
- 언리얼 엔진 5.2.1
- 타겟 사양
Intel i7 10700 or AMD 3600x
16gb RAM
NVIDIA 3070 8GB
- 4k 64인치 모니터 30fps 타겟 프레임

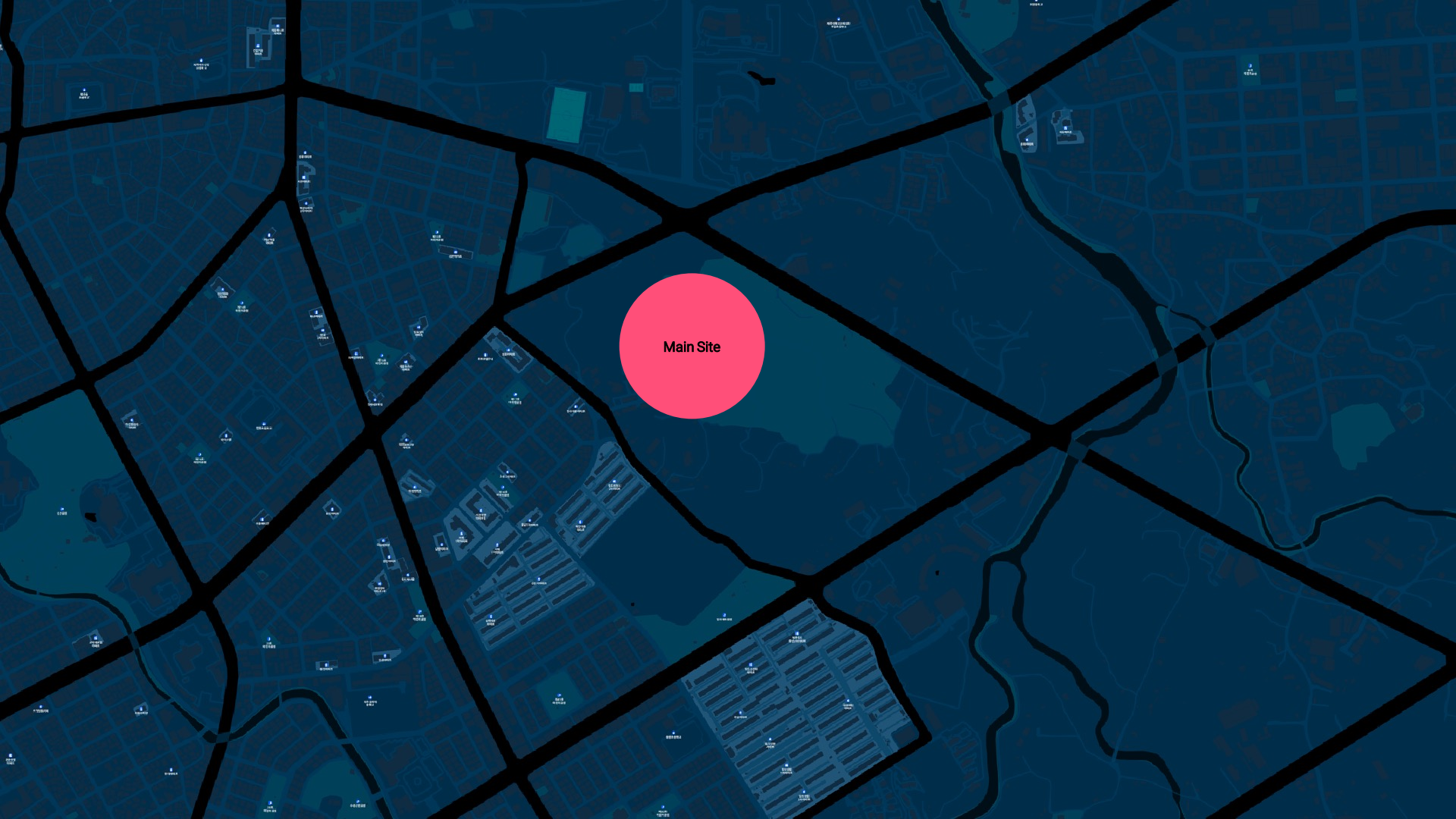


스케줄

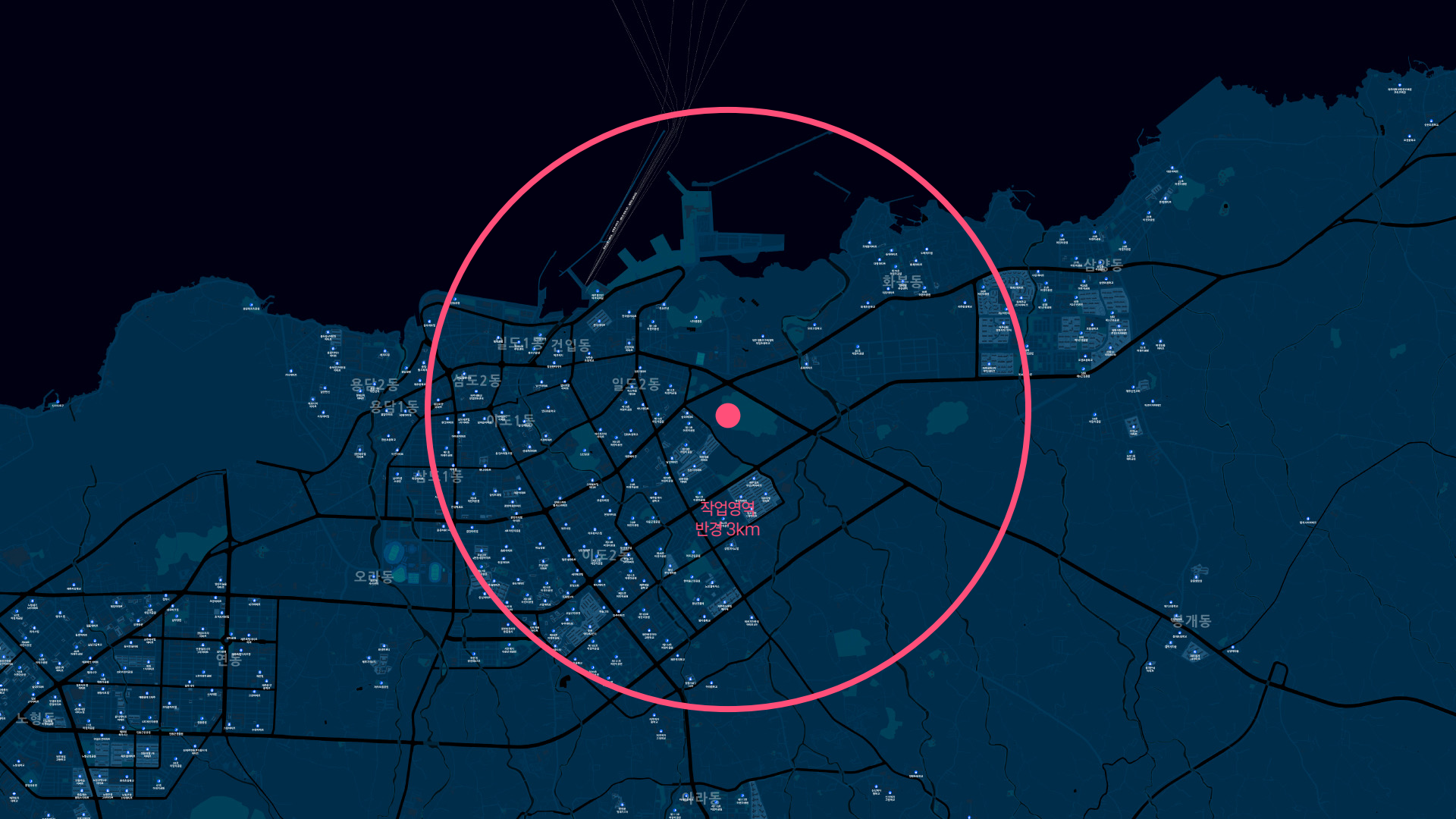


메인 사이트 중심으로
작업영역은 반경 3km





Main Site

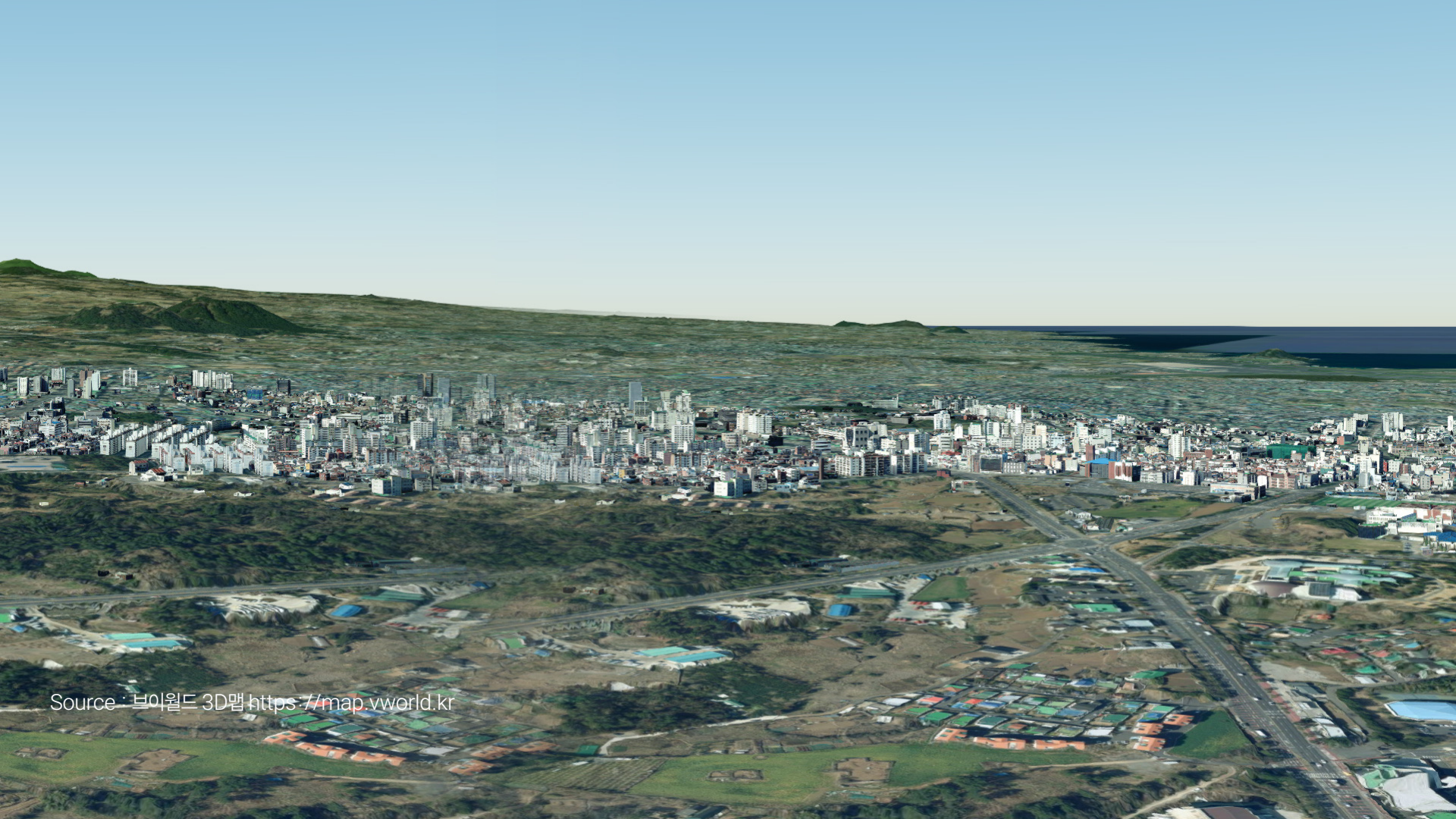


제주도 전체 크기
1,848km²





Source : 브이월드 3D맵 <https://map.vworld.kr>



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제주도
랜드스케이프

1

3

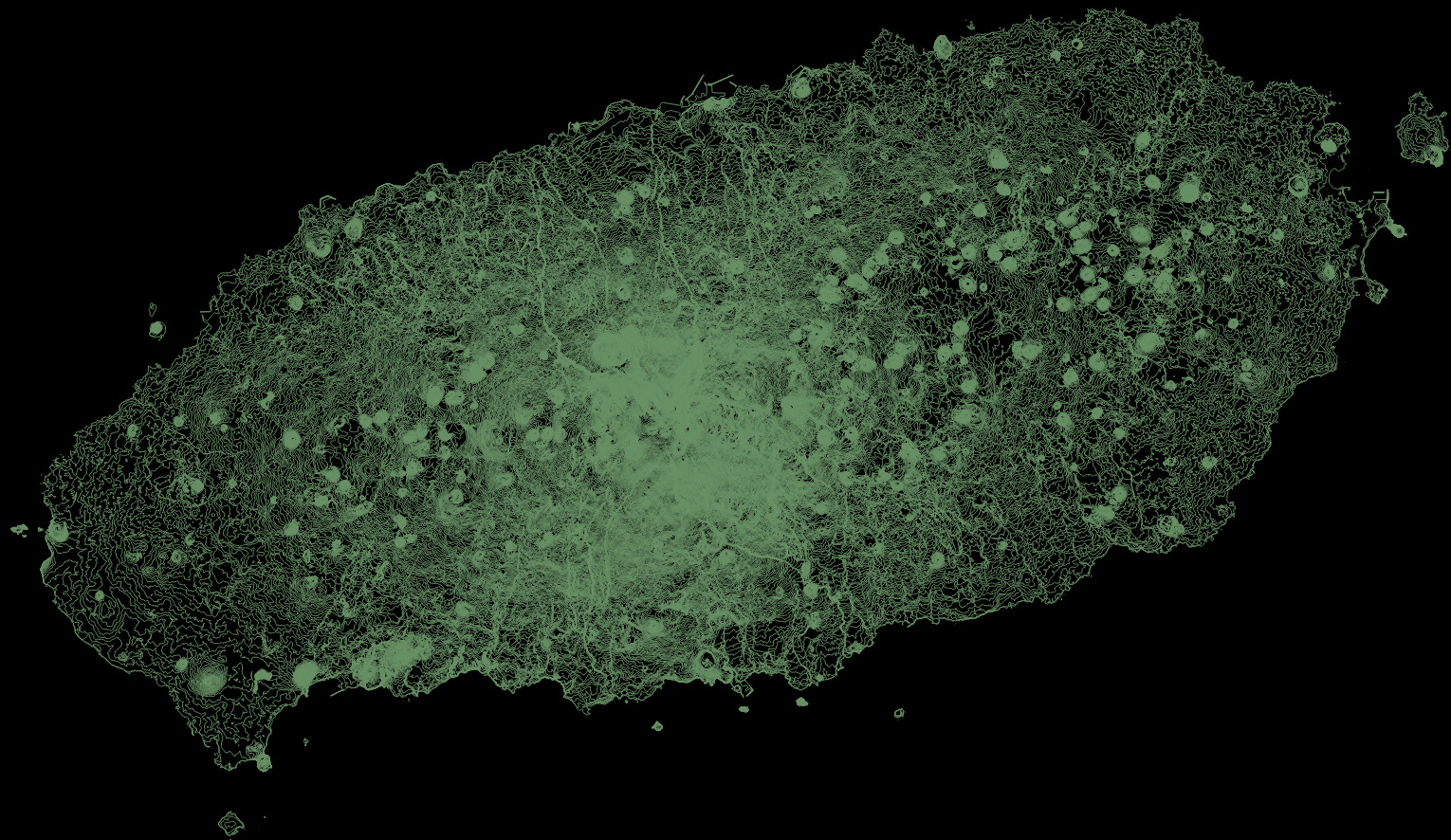
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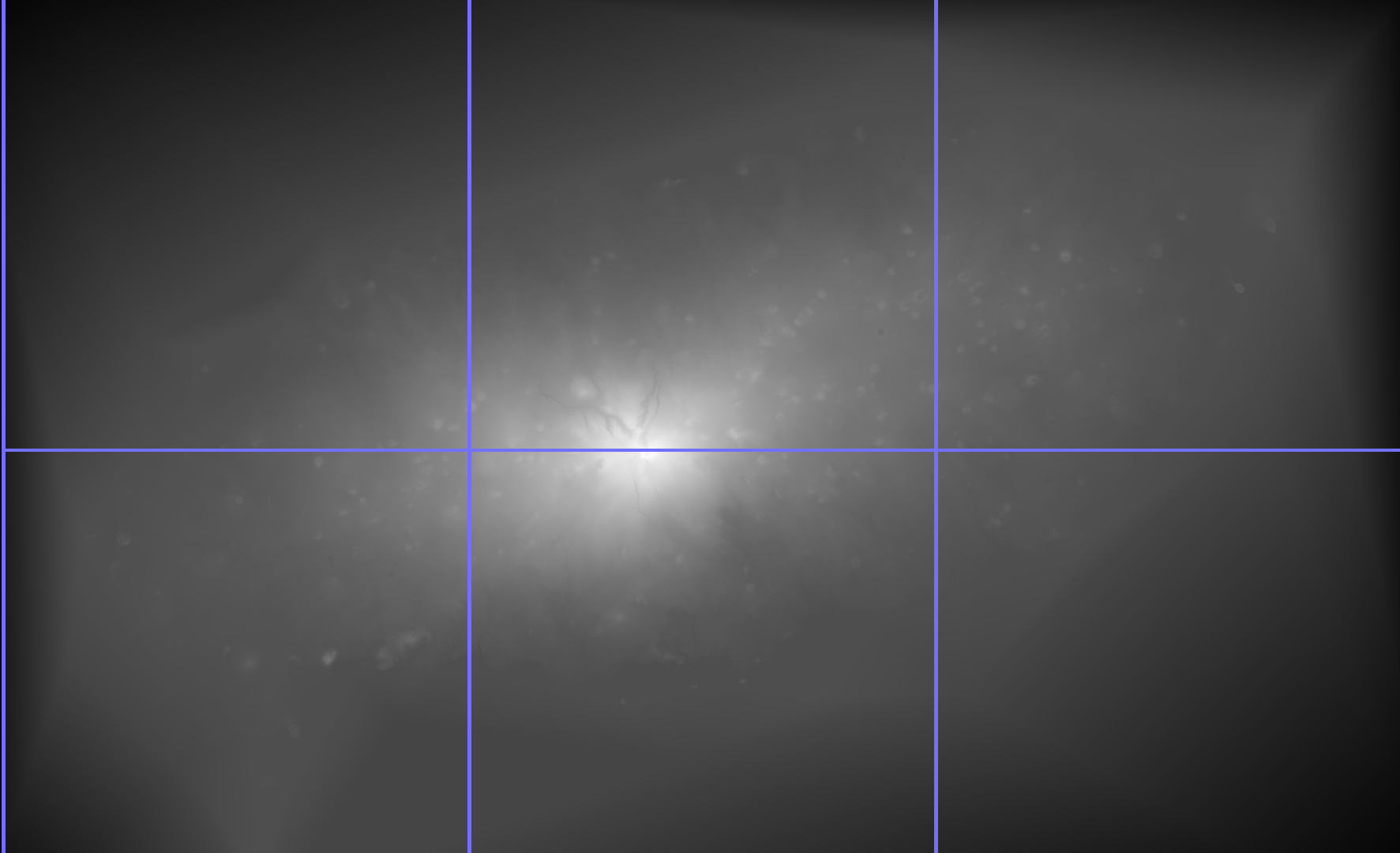
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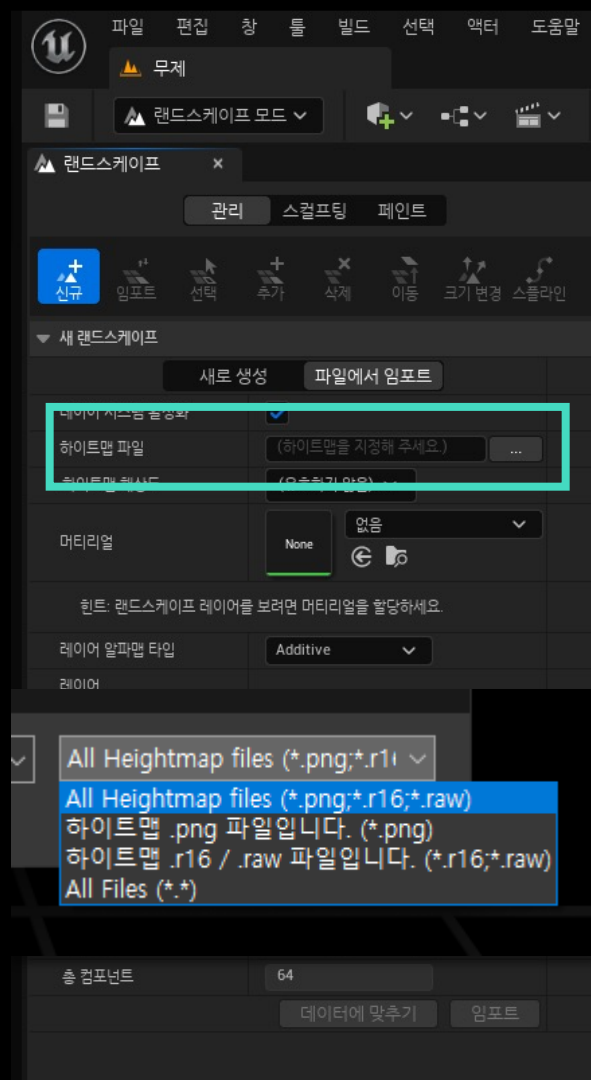
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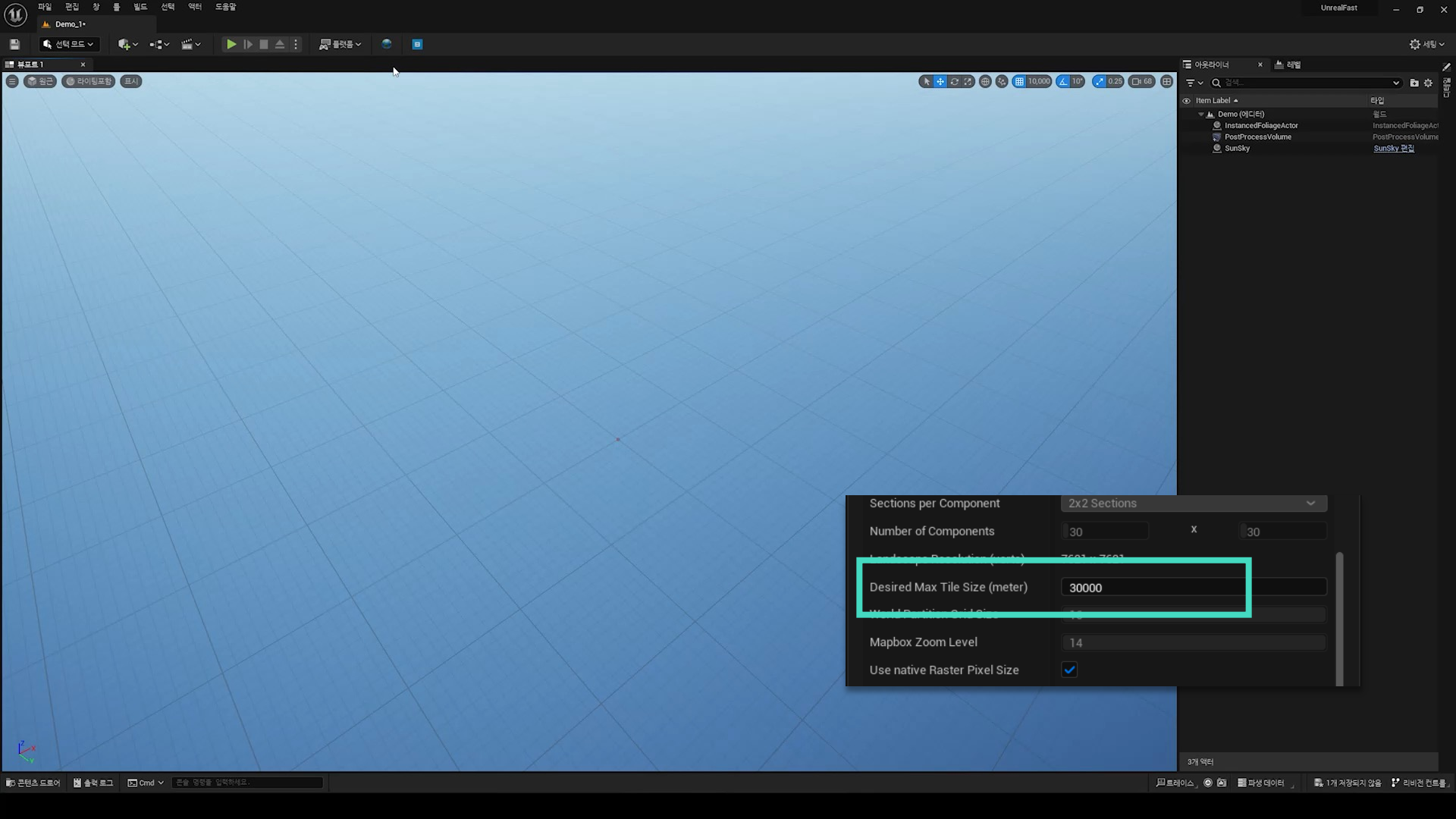
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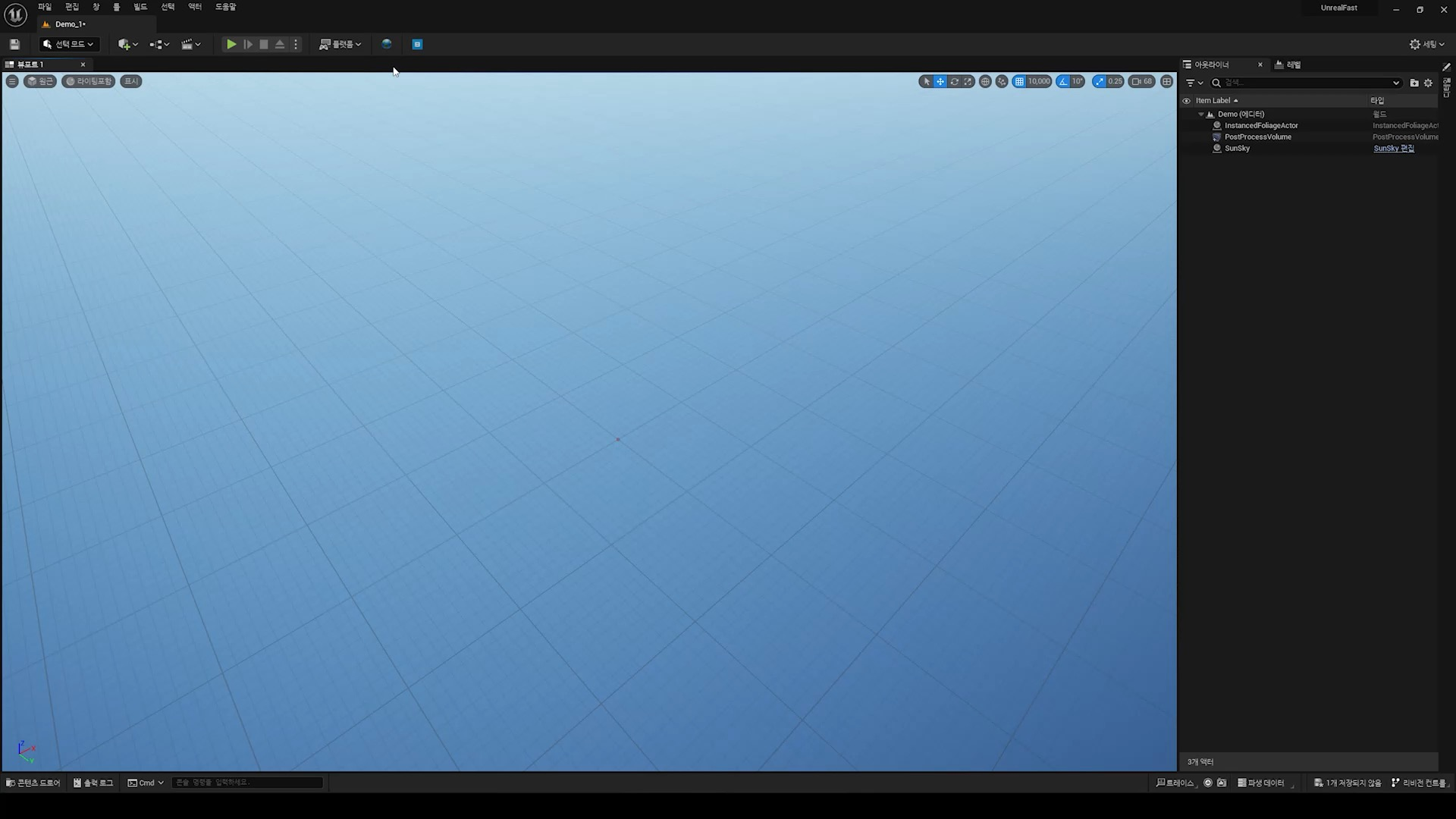








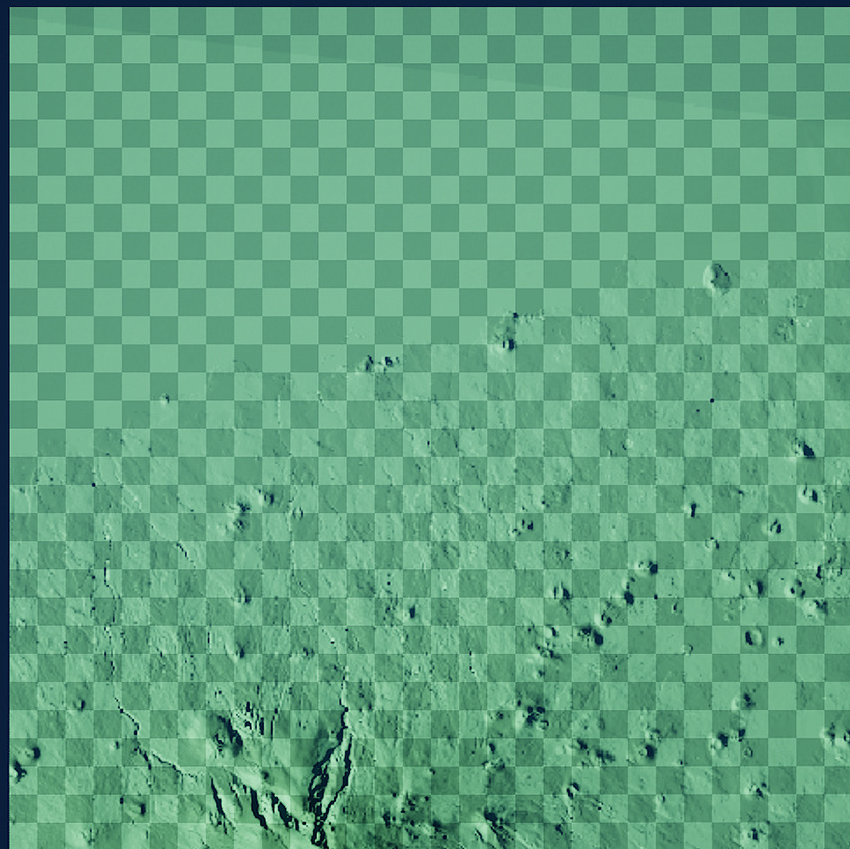




An aerial photograph of Jeju Island, South Korea, showing its rugged terrain. The island is mostly covered in green vegetation, with a prominent central volcano (Hallasan) that has a distinct crater. The coastline is irregular, with several bays and peninsulas. The surrounding water is a deep blue.

제주도
랜드스케이프 머테리얼

제주도
랜드스케이프 머테리얼

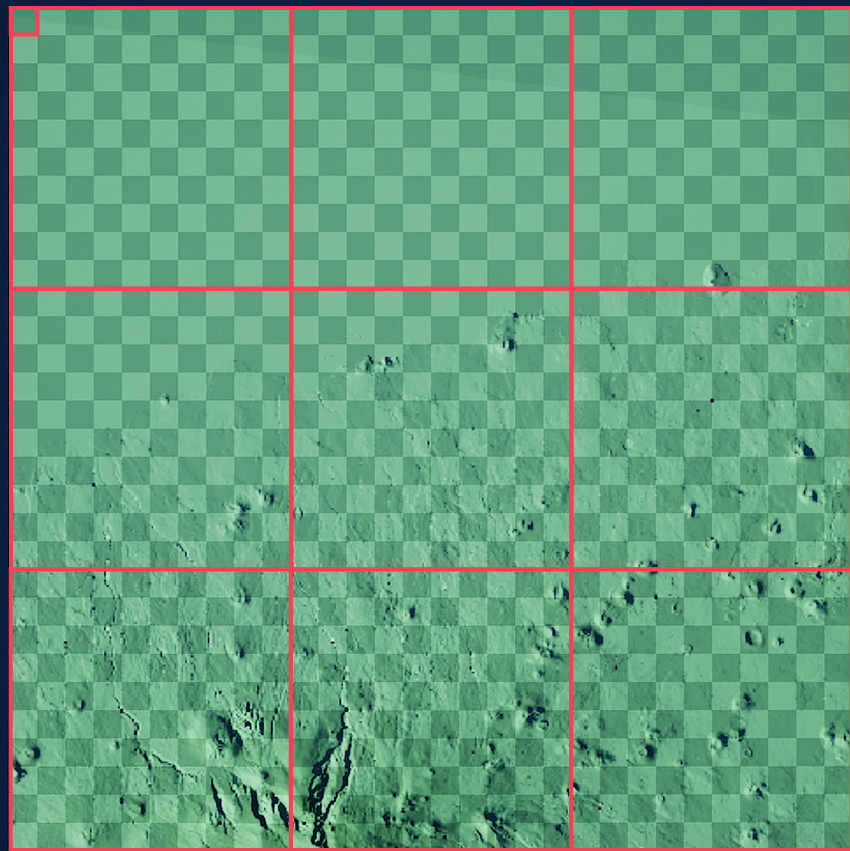


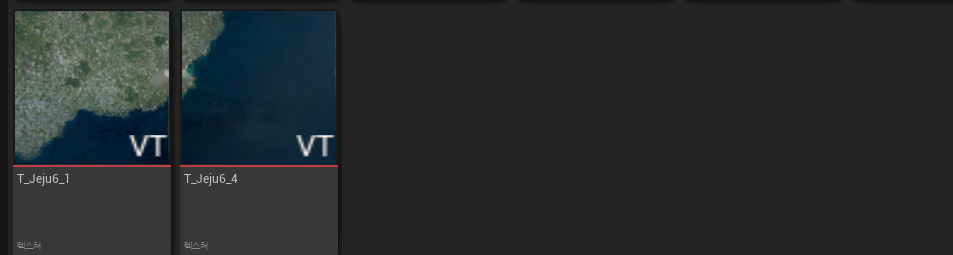
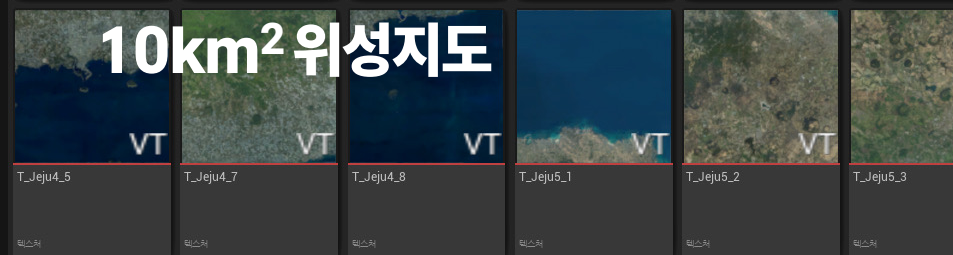
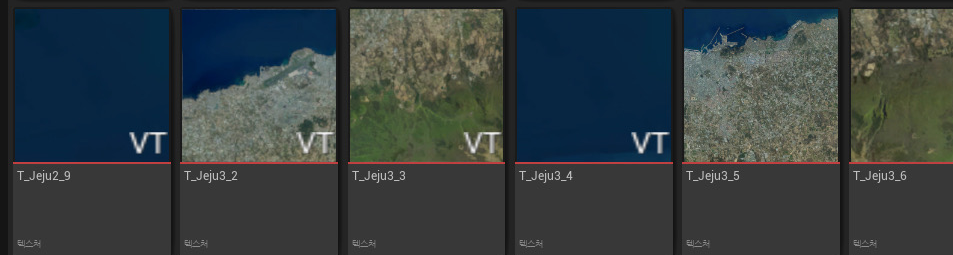
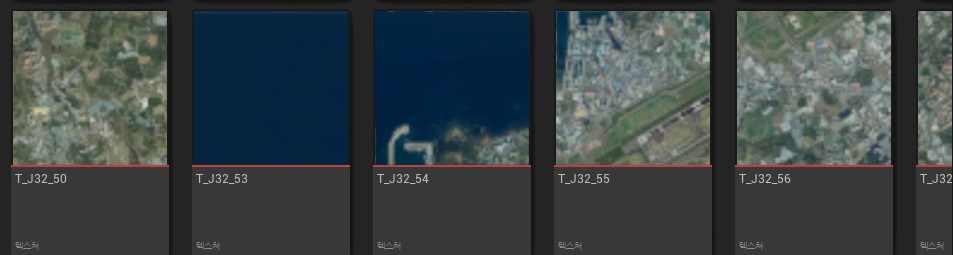
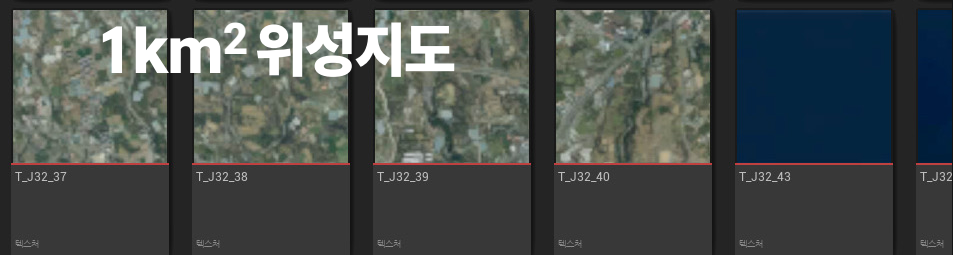
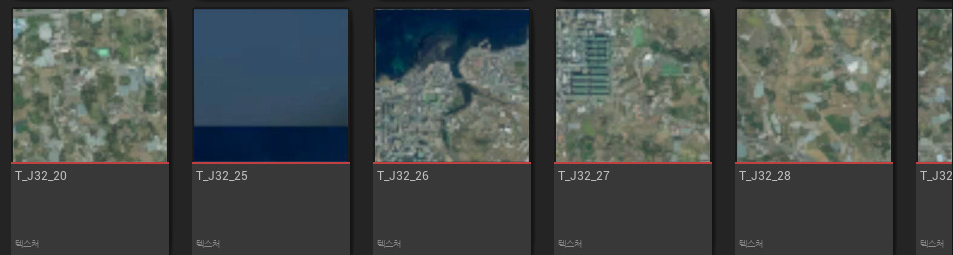
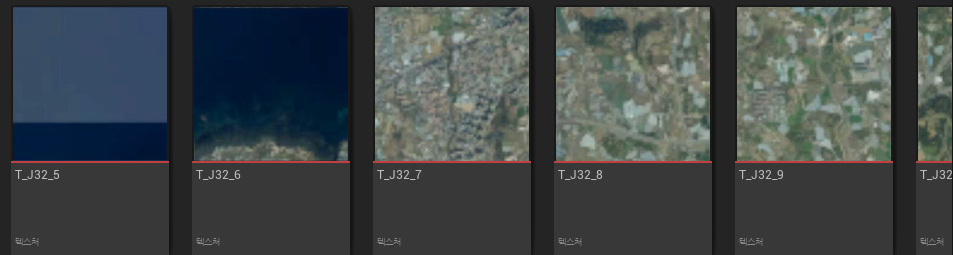
An aerial photograph of Jeju Island, showing its rugged terrain, numerous volcanic craters, and surrounding waters. The island's coastline is irregular, with several bays and peninsulas visible.

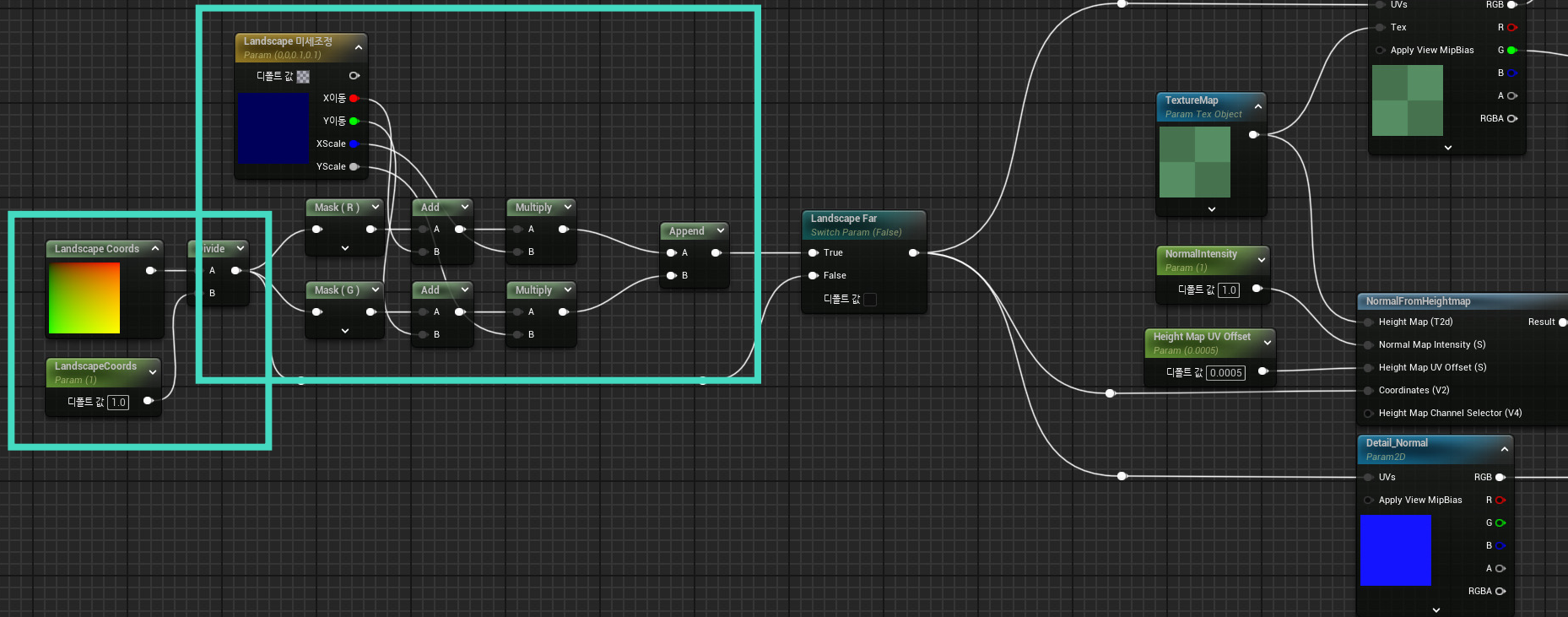
제주도 랜드스케이프 머테리얼

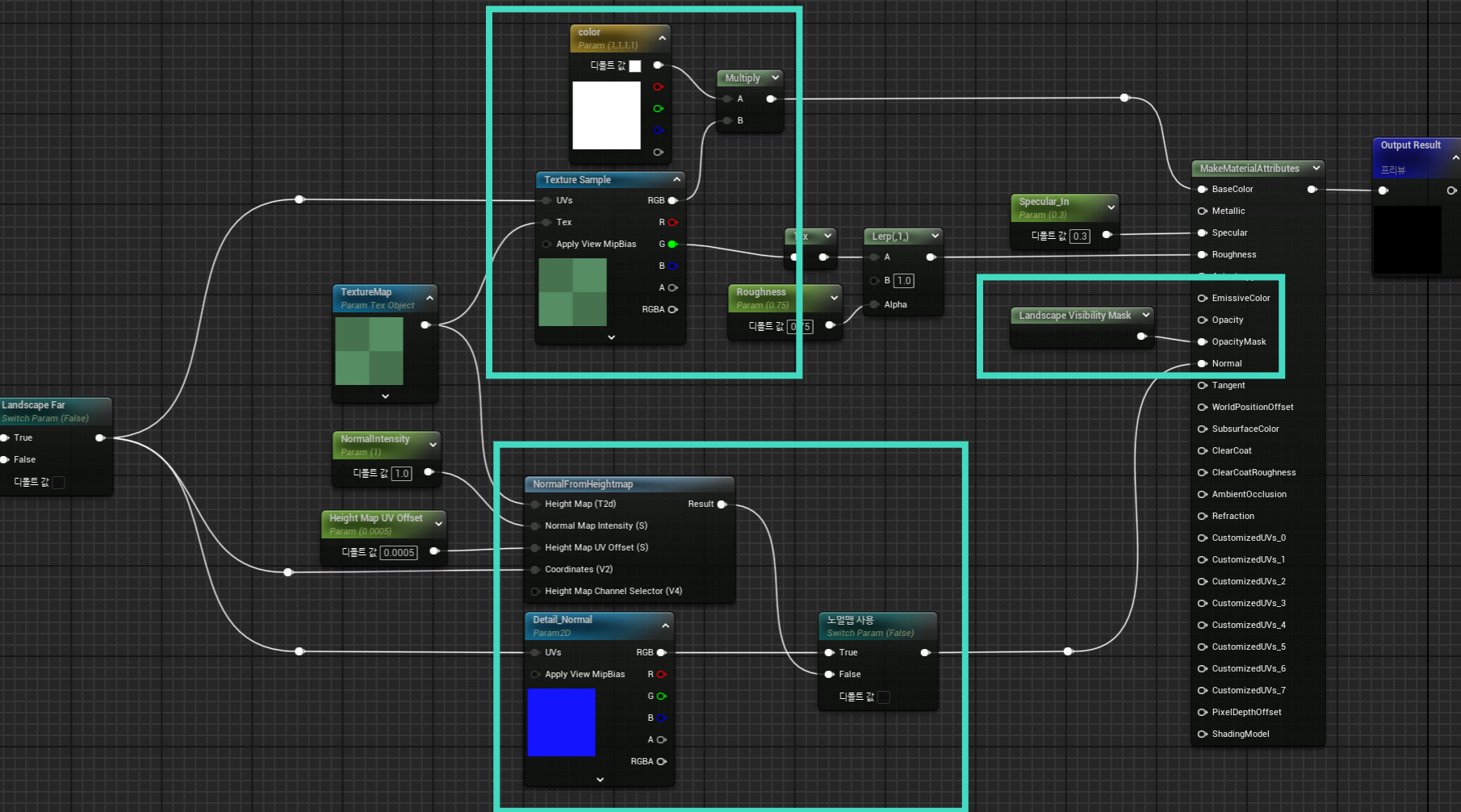


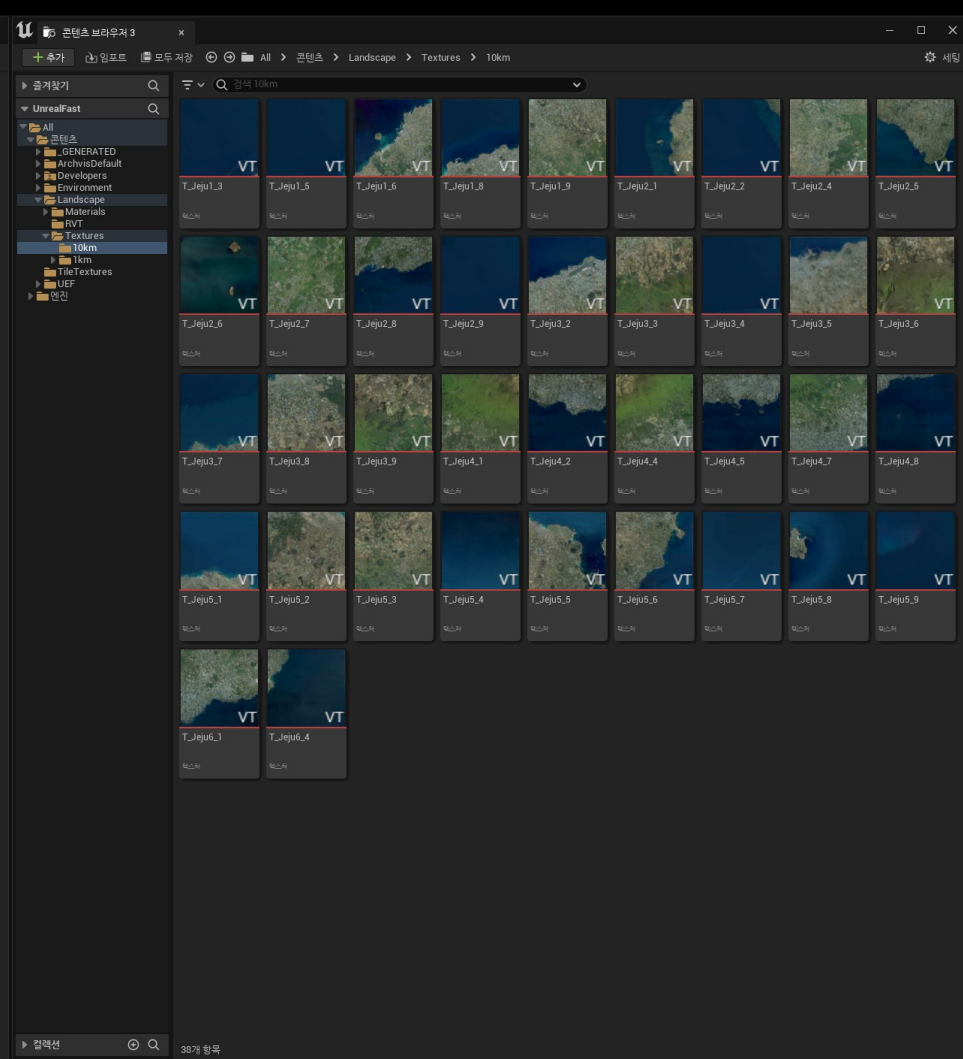
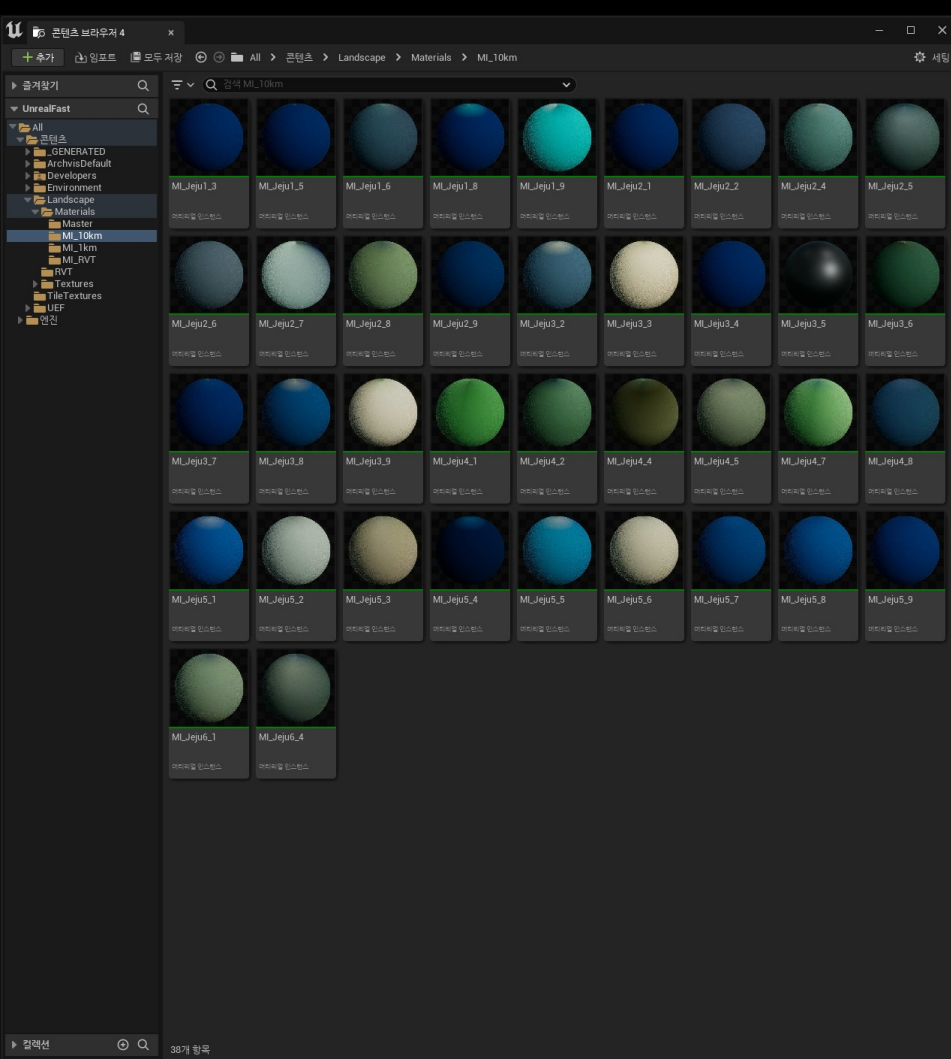
제주도
랜드스케이프 머테리얼

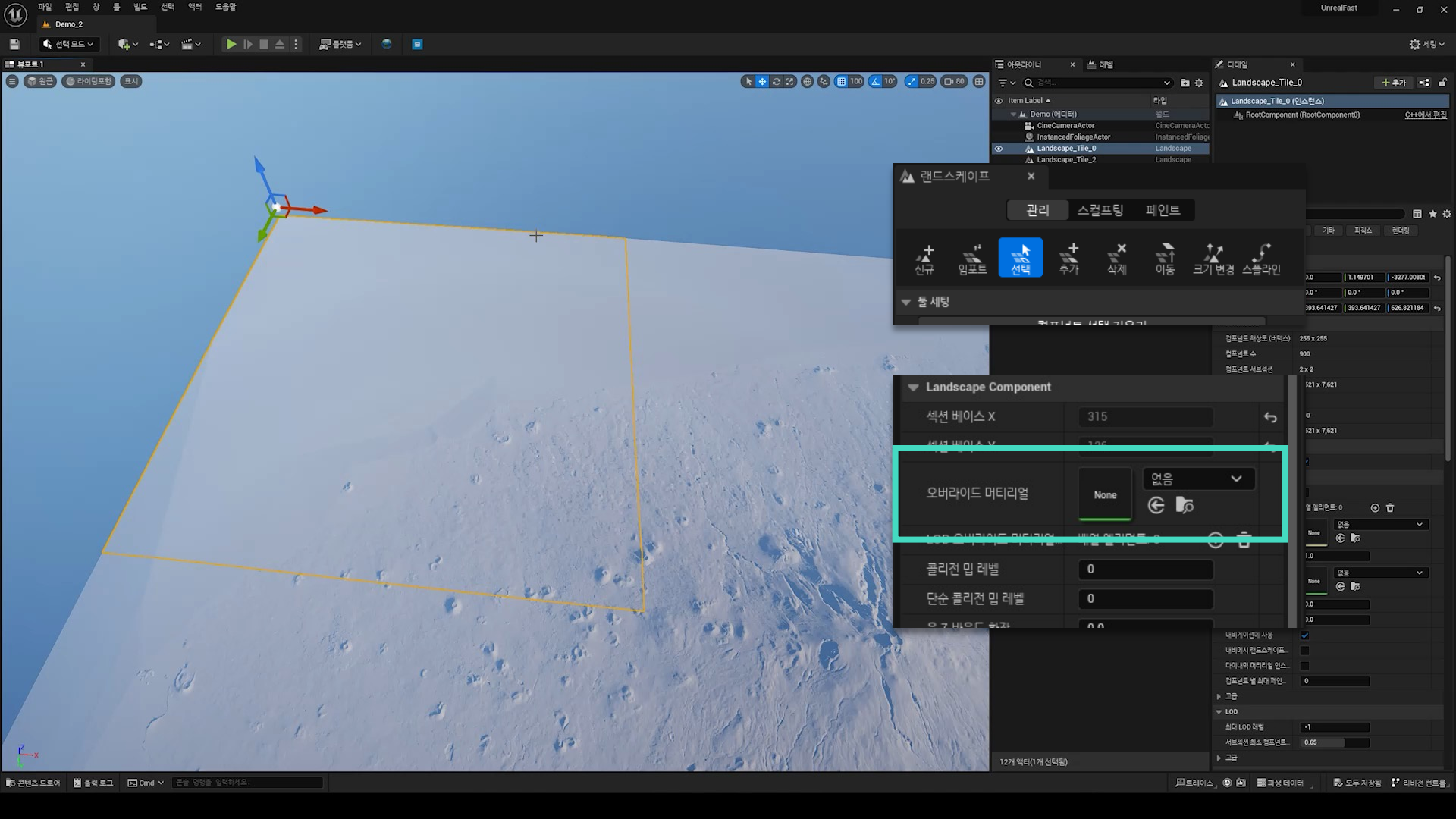












제주도 드론 정사영상

리얼리티 캡처 사용으로 정사영상 합성





기존 위성지도



드론 정사영상

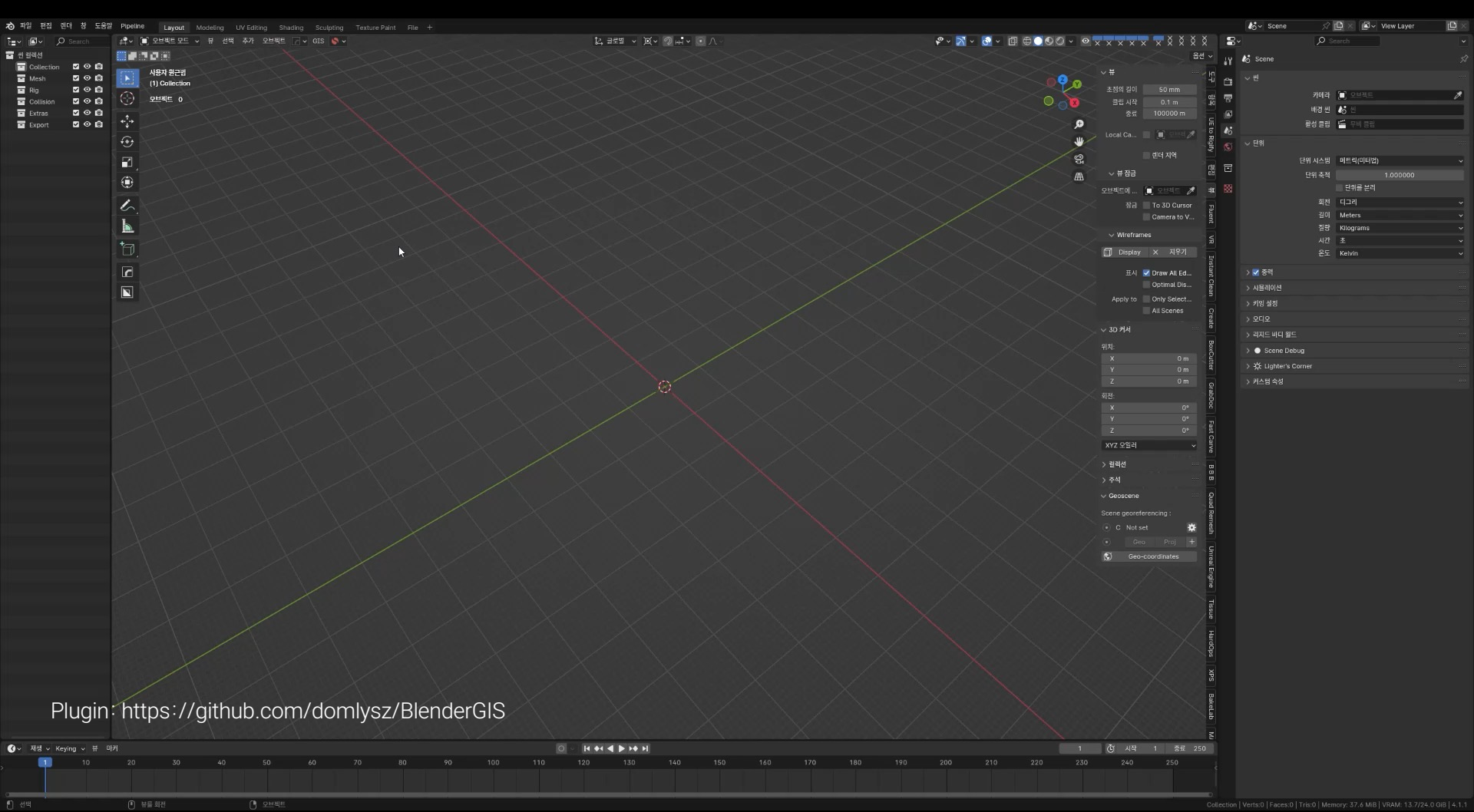
An aerial photograph of Jeju Island, South Korea, with the outlines of all buildings highlighted in a bright orange color. The island's coastline is visible, including the airport on the left and the harbor at the top. The dense packing of orange shapes represents the urban landscape.

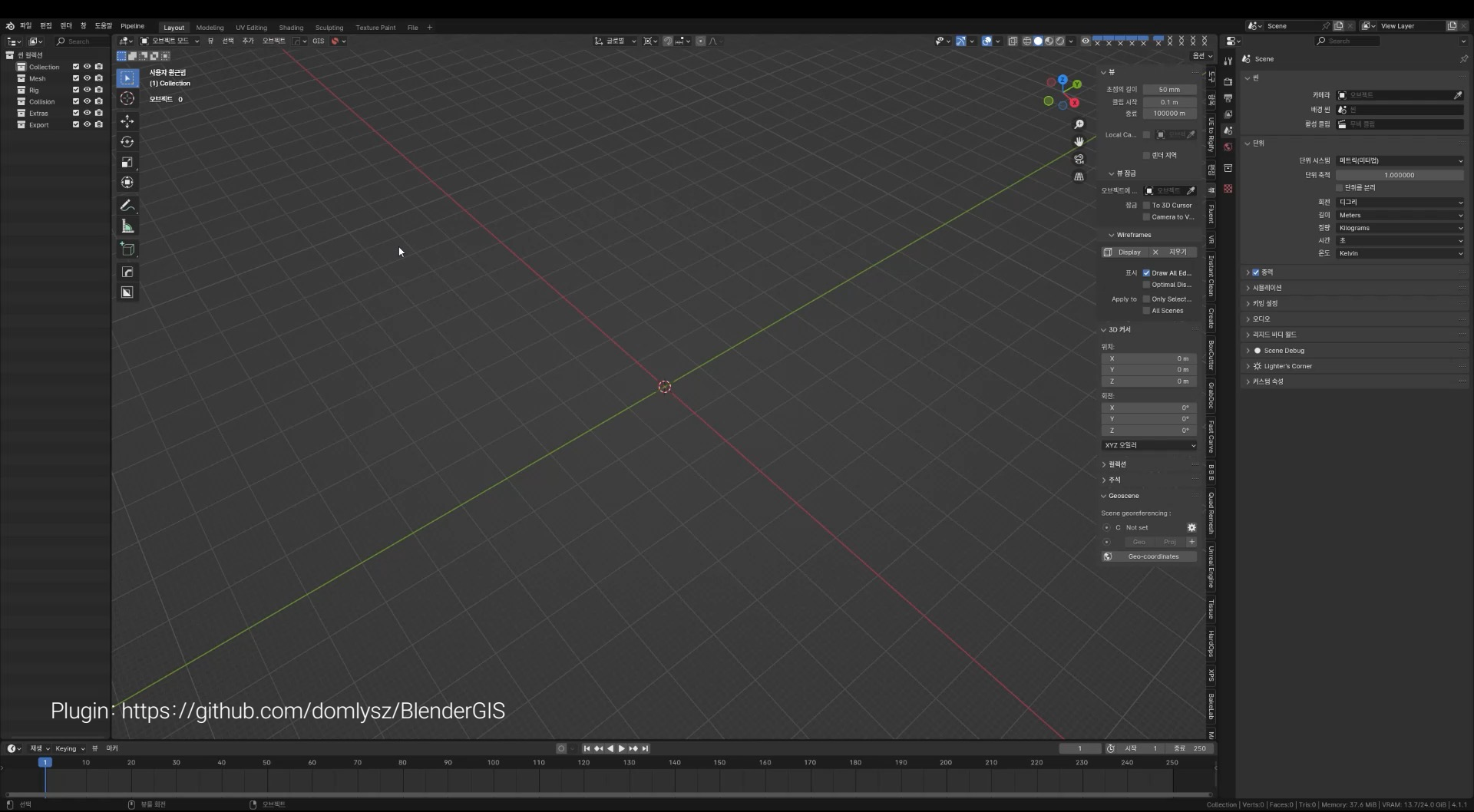
제주도 더미건물

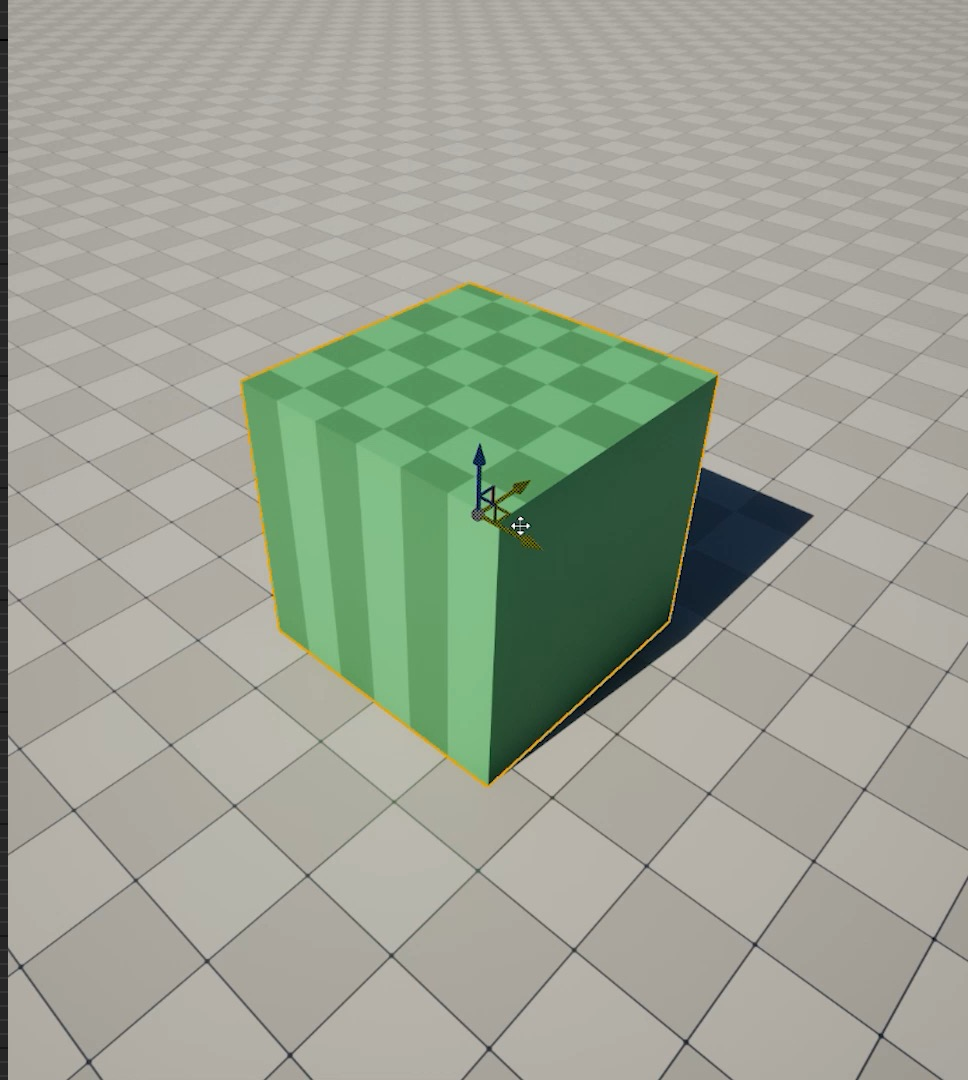
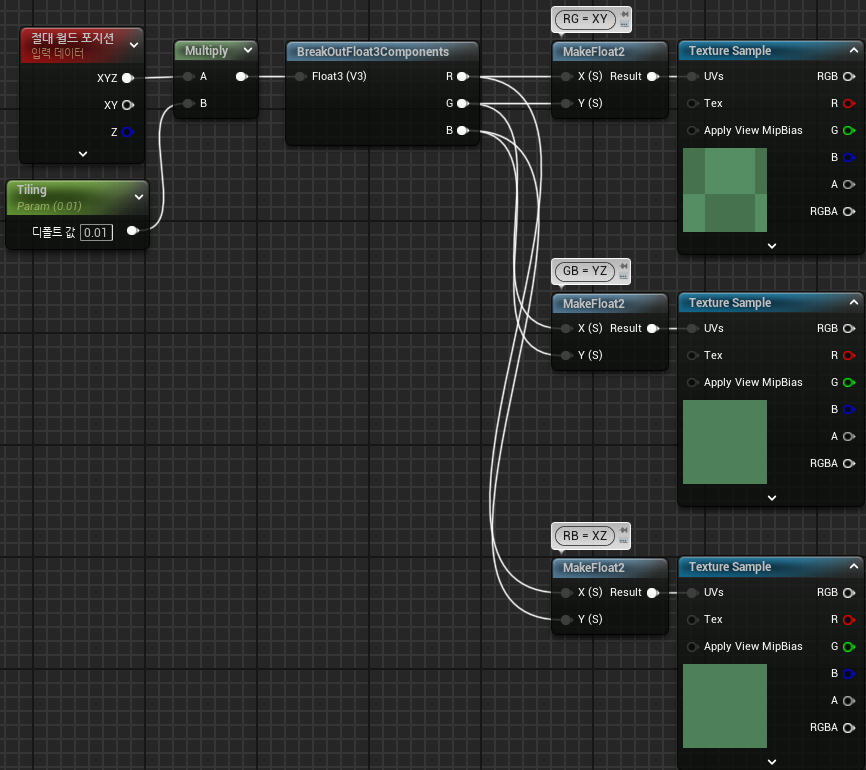
시각적으로 이상하지 않게 보이는 건물들

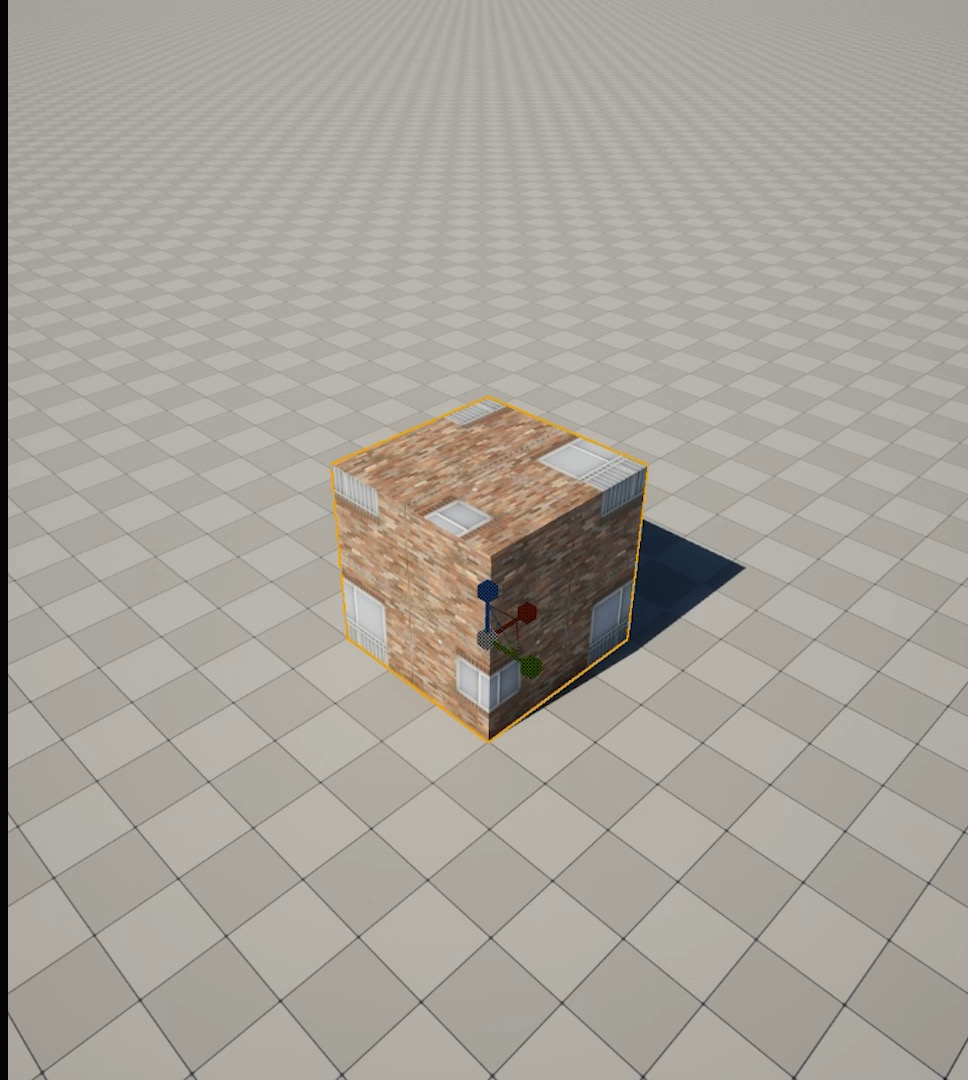
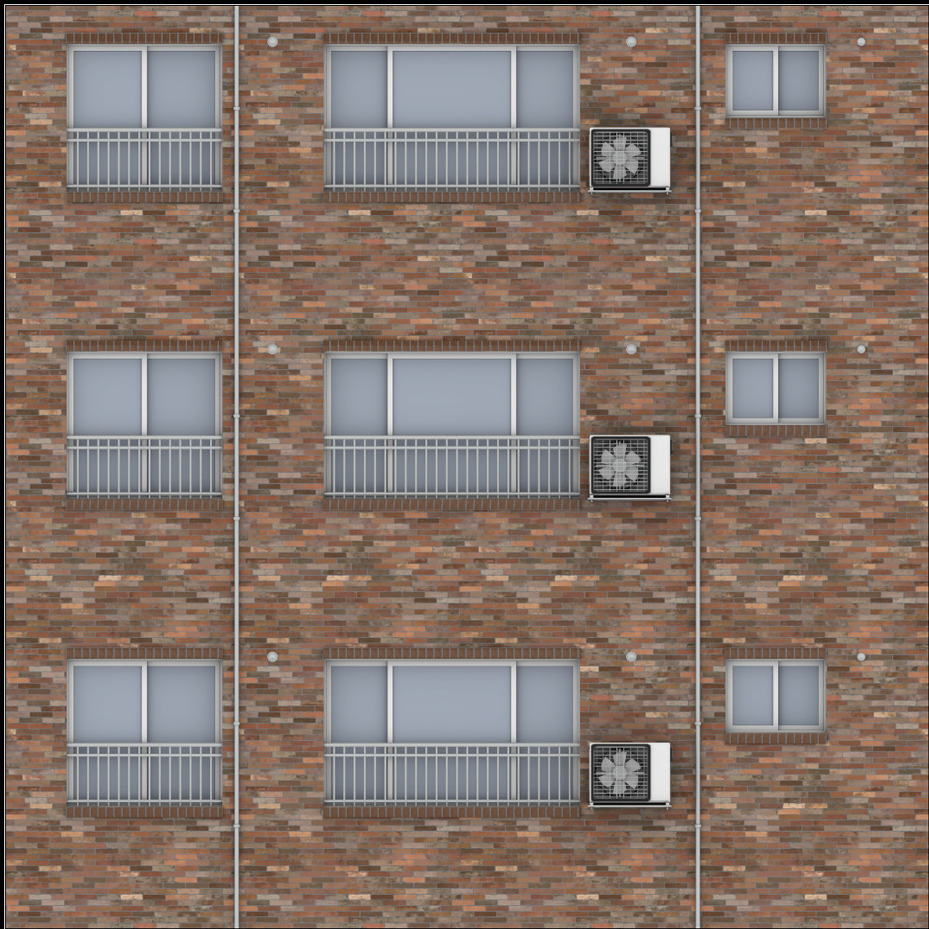


ID	이름	별칭	유형	유형명	길이	정밀도	주석
abc 0	명장		텍스트 (string)	String	254	0	
abc 1	구분		텍스트 (string)	String	100	0	
abc 2	종류		텍스트 (string)	String	100	0	
abc 3	용도		텍스트 (string)	String	100	0	
abc 4	주기		텍스트 (string)	String	254	0	
123 5	층수		Integer (32 bit)	Integer	3	0	



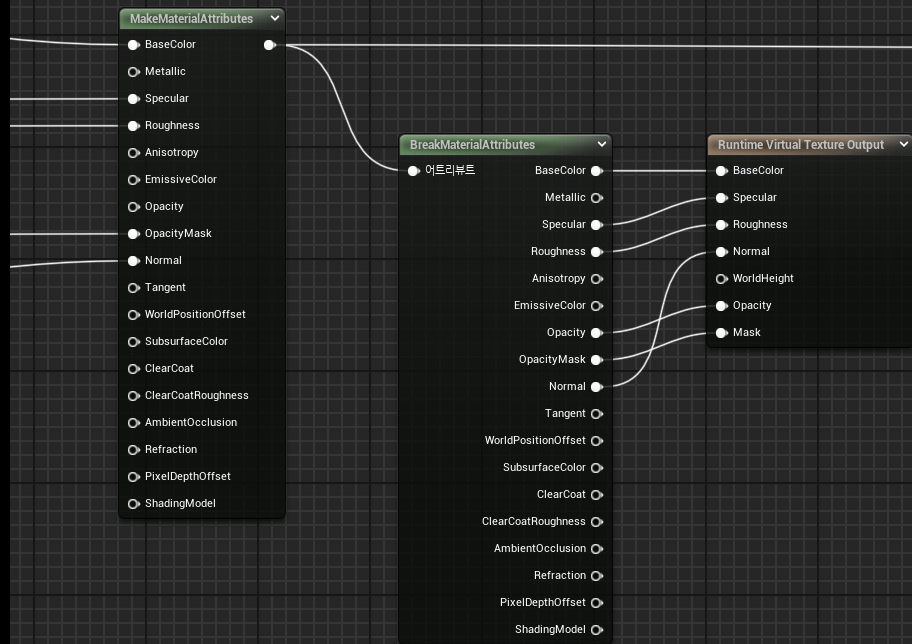


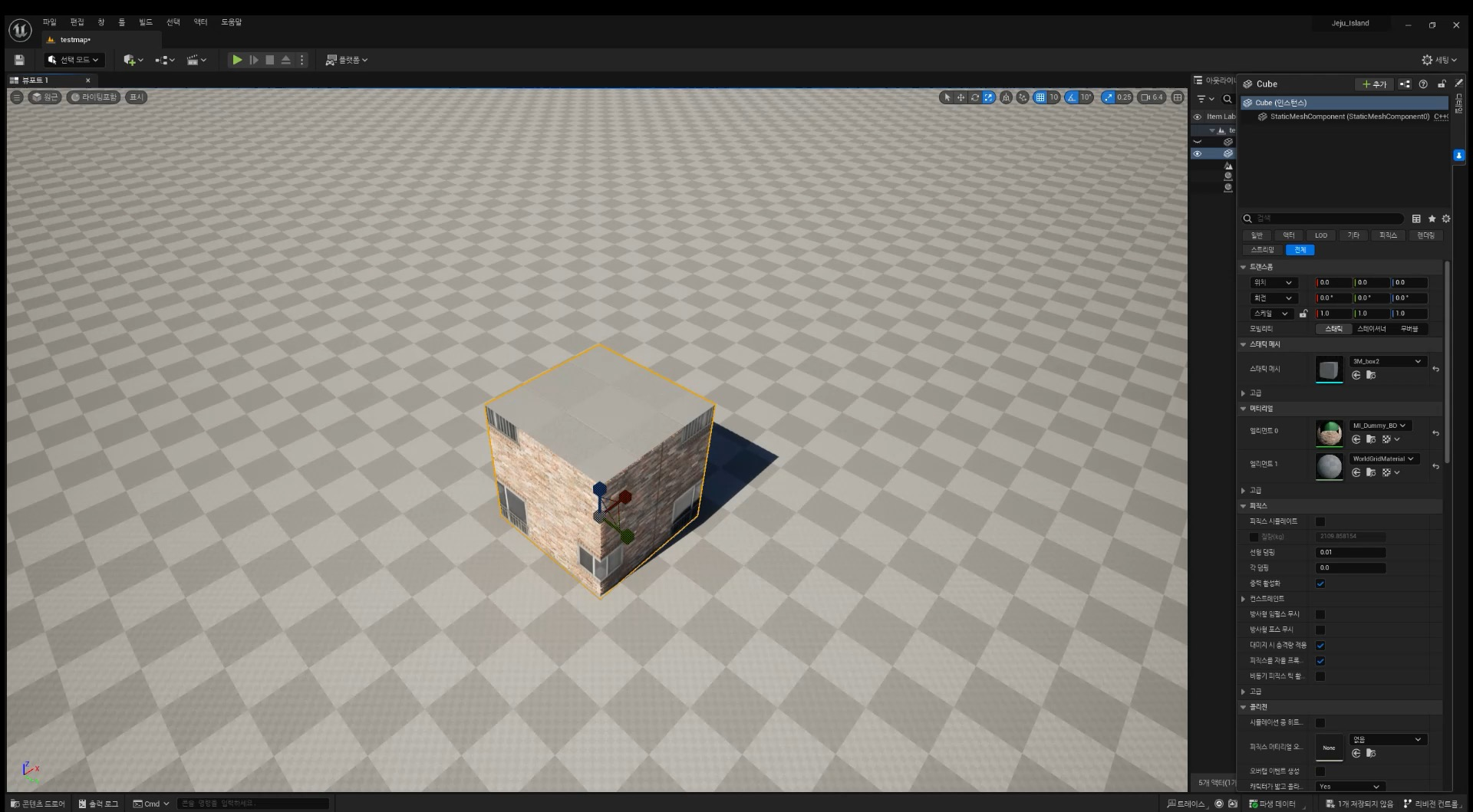




RVT

Runtime Virtual Texturing을 사용하여
건물 옥상의 텍스처를 생성







POI(Point Of Interest)

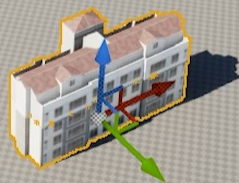
지역의 랜드마크 혹은
요청 받는 건물과 그 주변



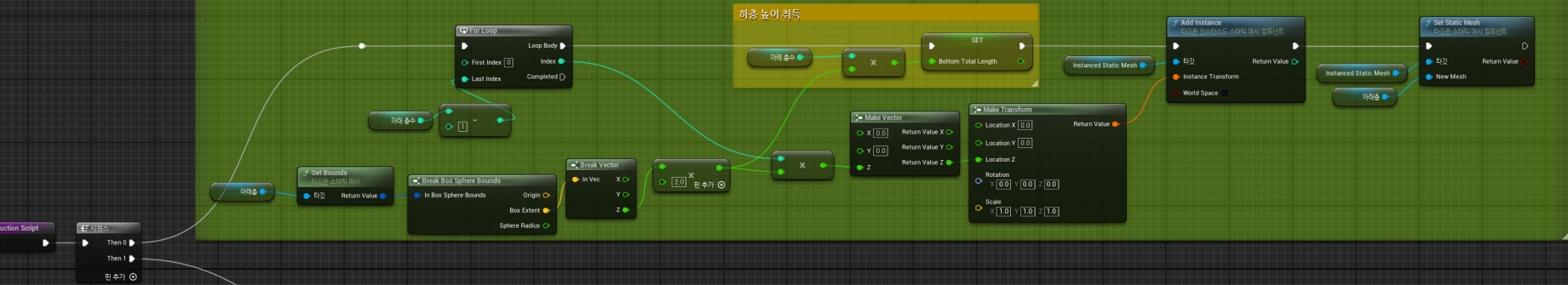


건물 모듈러

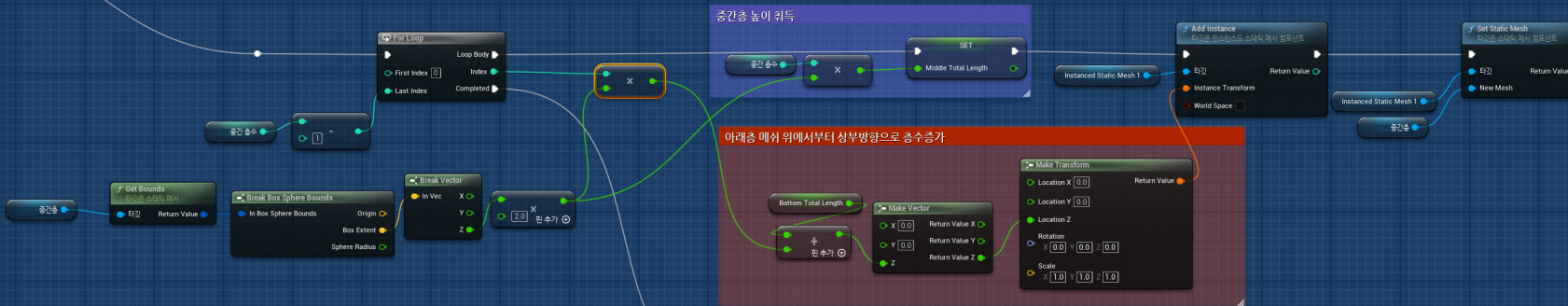
일정 규칙을 가진 건물들을 절차적으로
생성할 수 있도록 제작한 툴



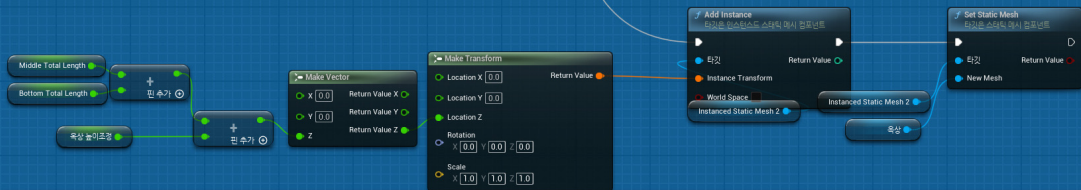
시각층



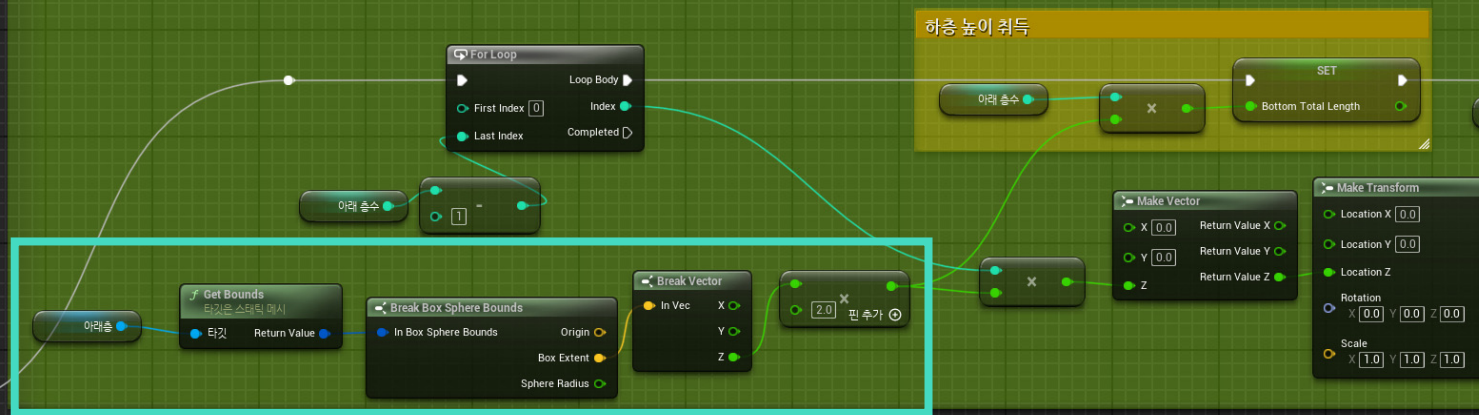
중간층



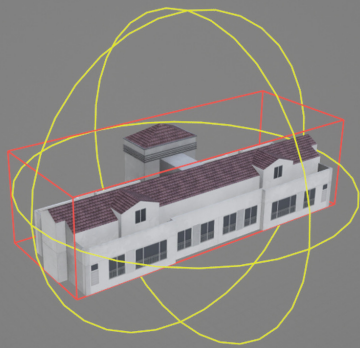
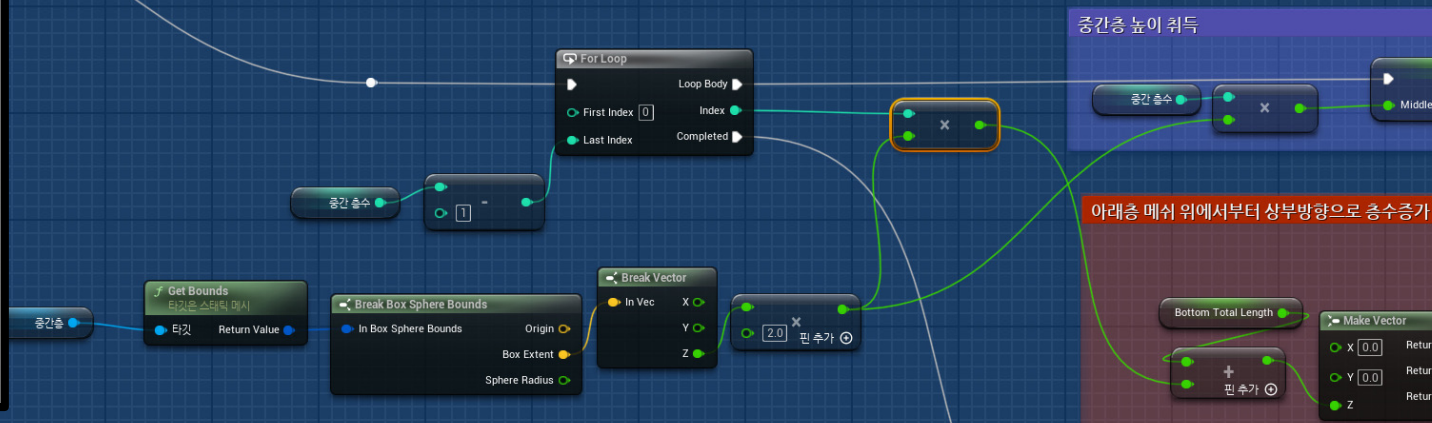
옥상 (단일메쉬)

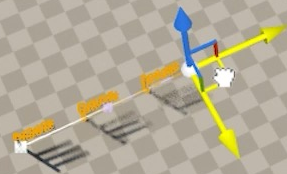
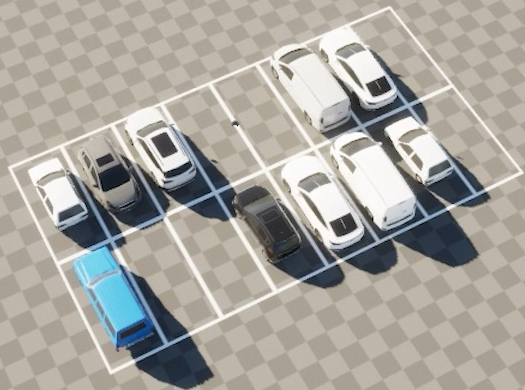


시작층



층





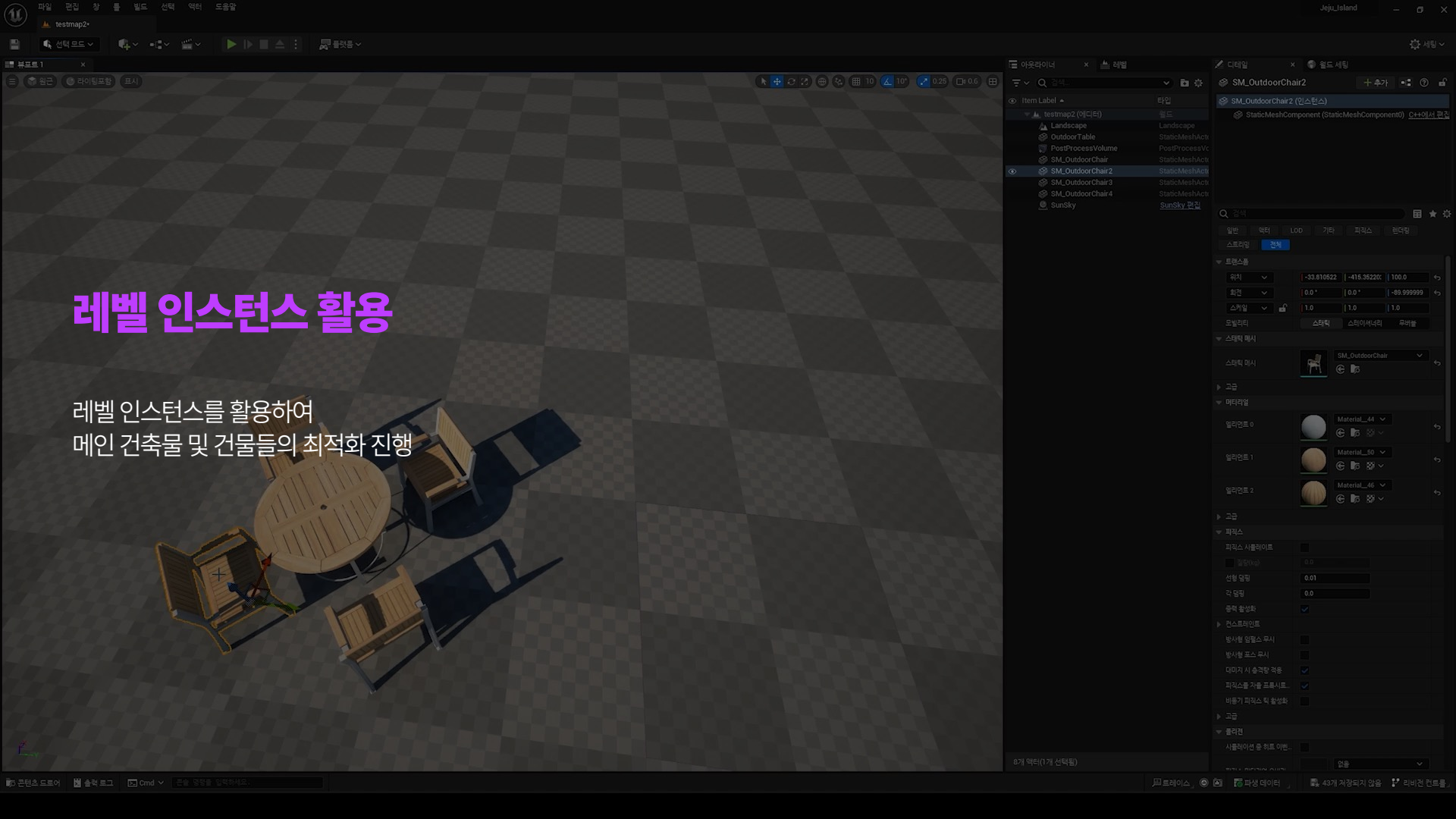
MainSite



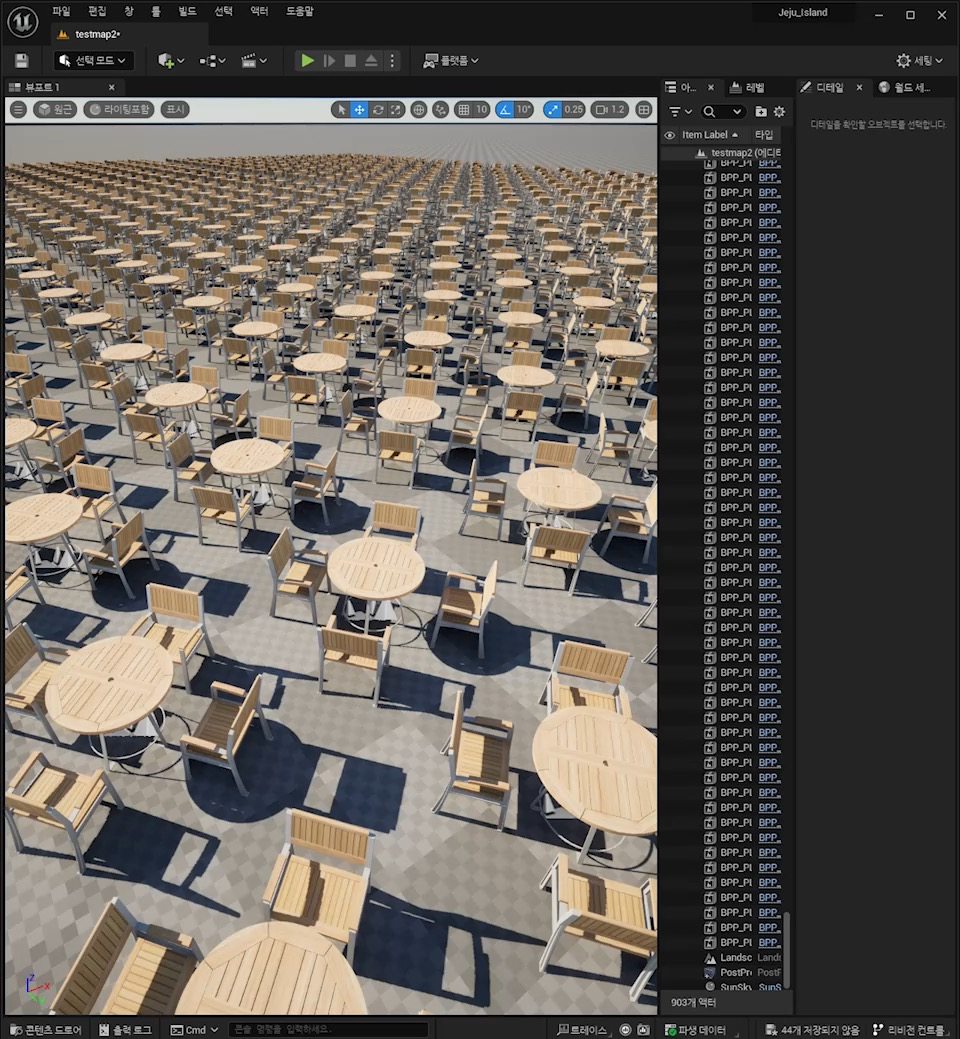
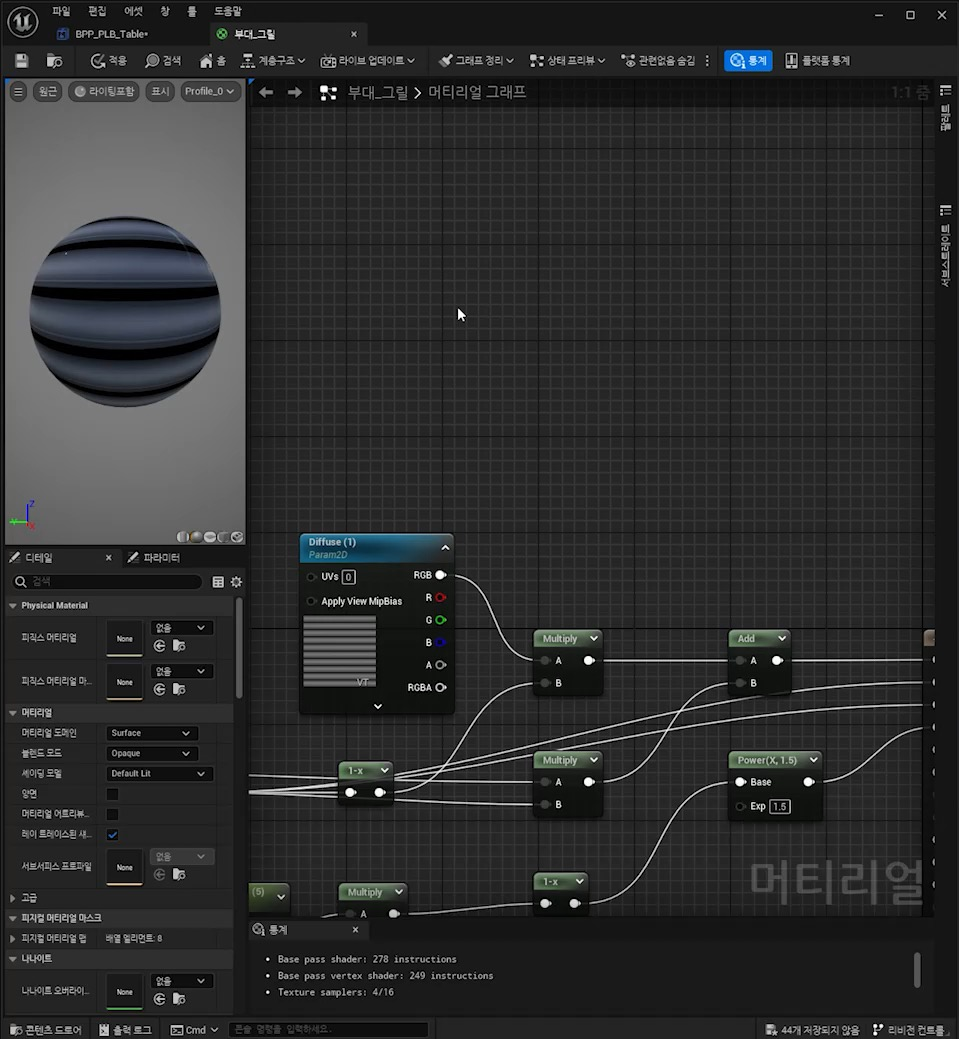


레벨 인스턴스 활용

레벨 인스턴스를 활용하여
메인 건축물 및 건물들의 최적화 진행









1700 FPS
Frame: 2740 ms
Game: 1974 ms
Draw: 016 ms
RH: 062 ms
GPU Time: 245 ms
DynRes: Unapproped
Draws: 1064
Prims: 1234K

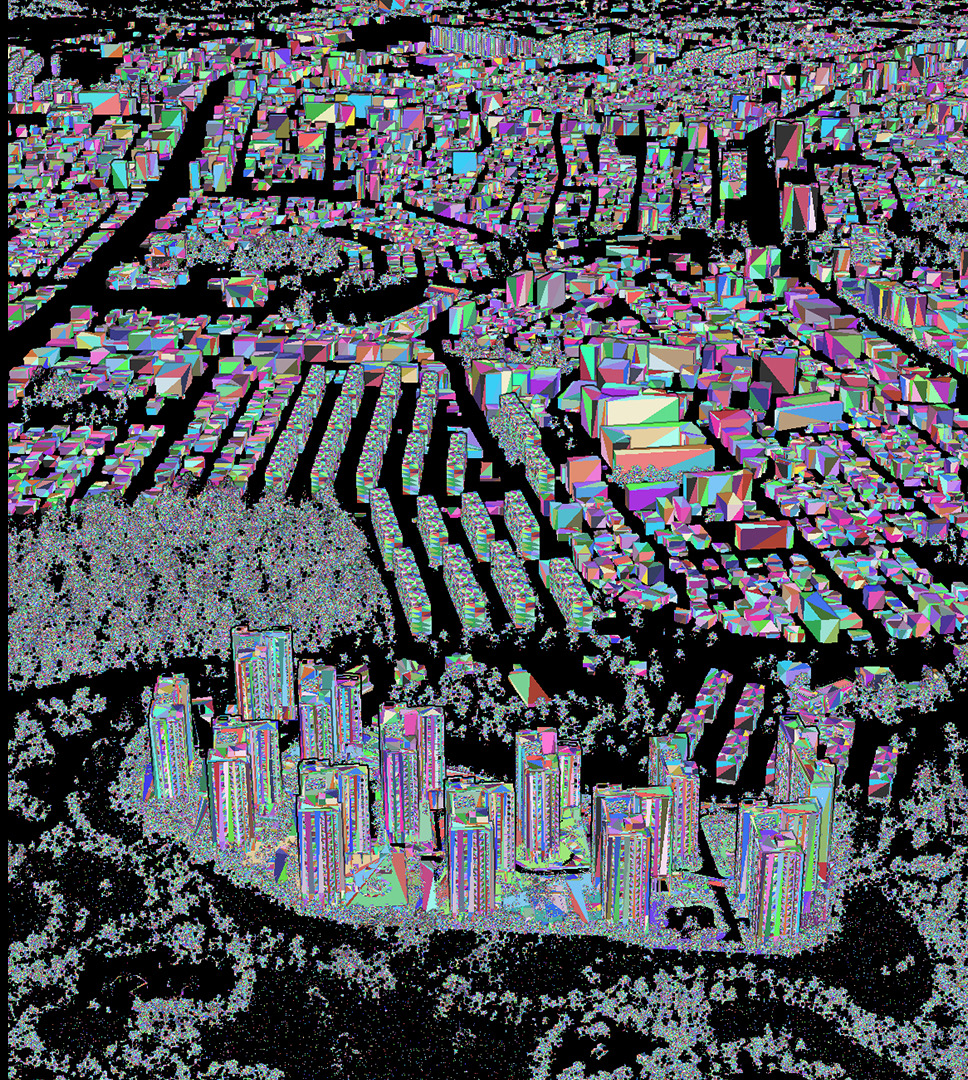
외부 액터 활용

협업 시 혼선이 일어나지 않도록
신규 추가 된 외부 액터 기능을 도입



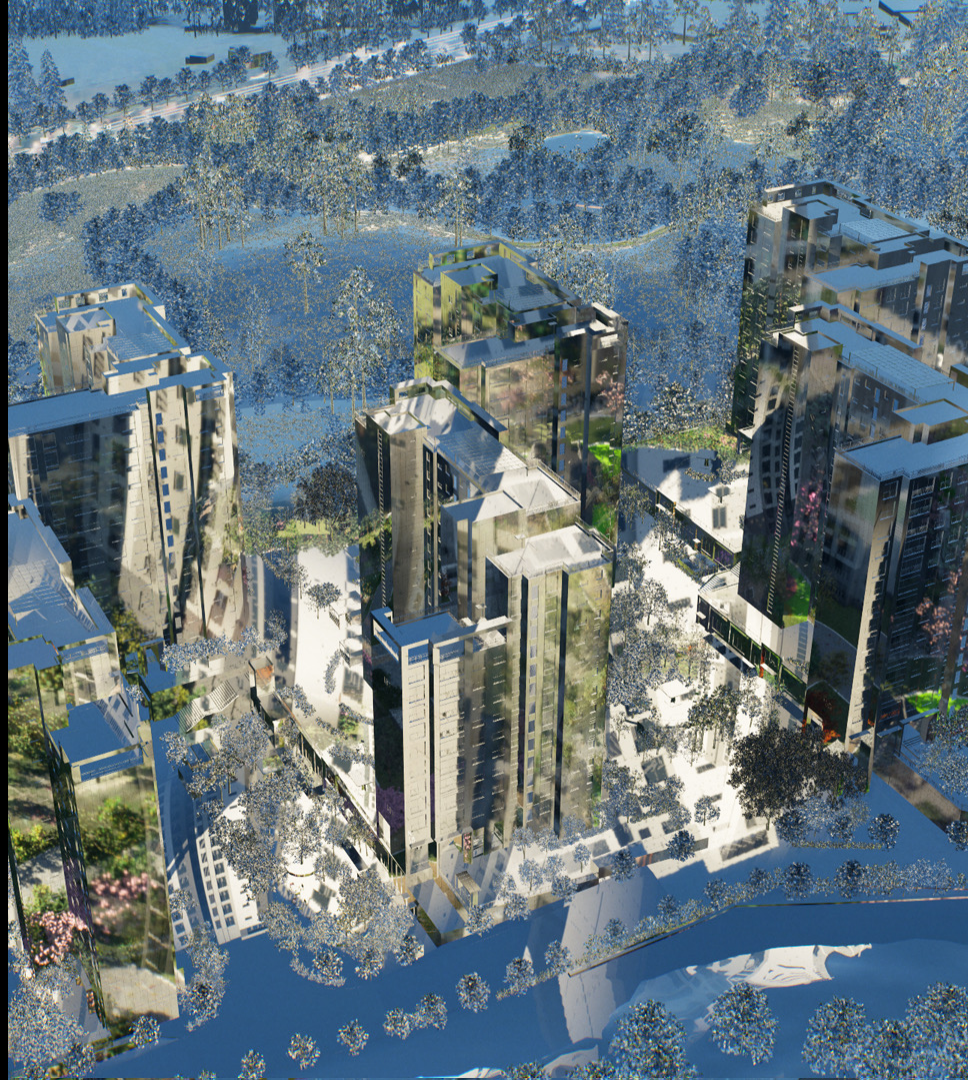
나나이트

나나이트를 적용하여 메시 최적화의
시간을 상당히 단축함



루멘

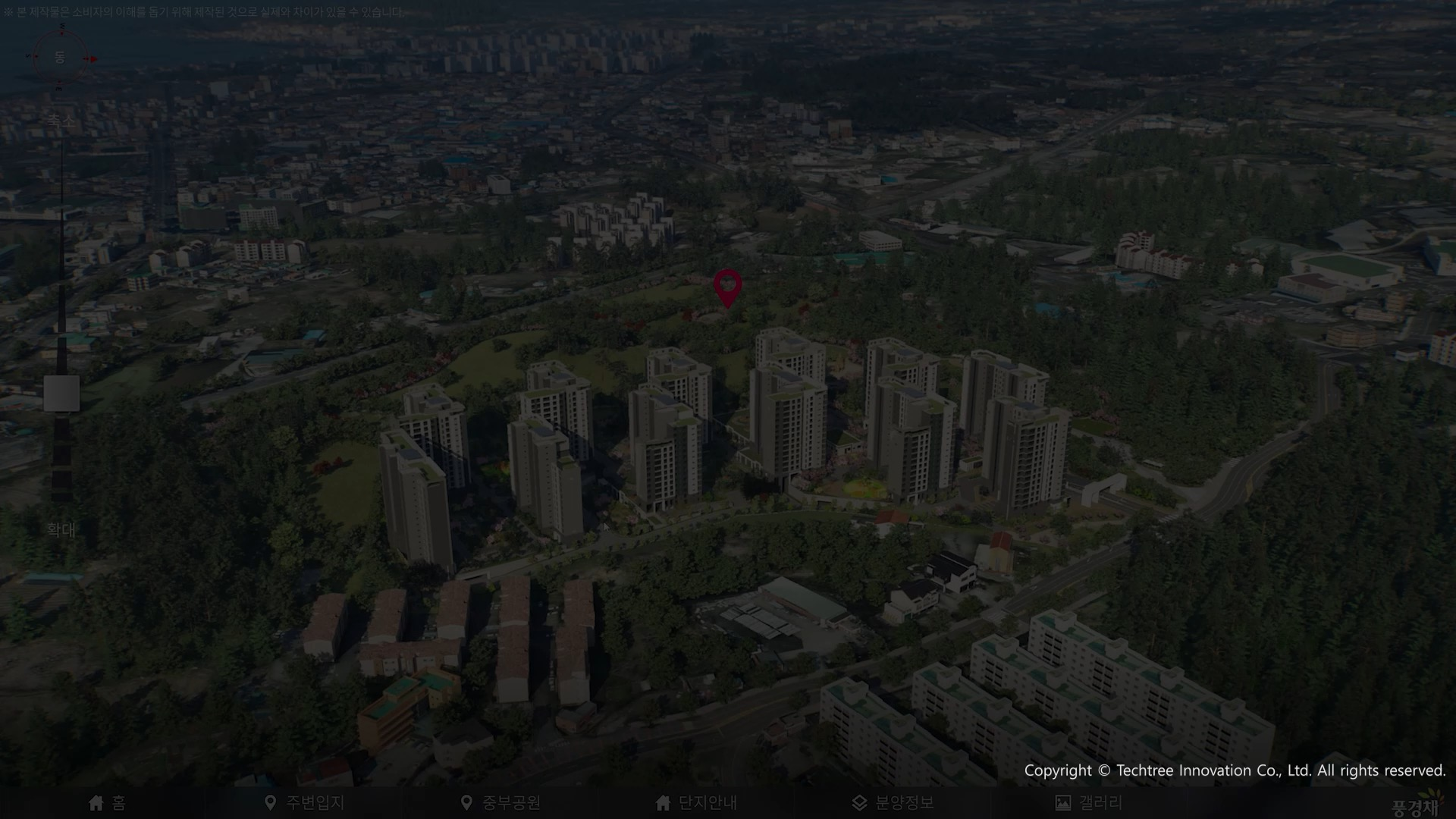
루멘 사용으로 그림자 부분의
그라데이션 깊이감을 풍부하게 표현함.





Shadow Maps
사용

Virtual Shadow Maps
사용



축소

확대

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🏠 홈

📍 주변입지

📍 중부공원

🏠 단지안내

📊 분양정보

🖼️ 갤러리

풍경채



AROUND



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감사합니다.

— 테크트리이노베이션